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ARMED FORCES CHEMICAL JOURNAL

NATHANIEL S. PRIME
Rear Admiral U. S. Navy (Ret.)
New President of A.F.C.A.

JULY-AUGUST, 1954

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ARMED FORCES CHEMICAL JOURNAL

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The Armed Forces Chemical Journal is the official publication of the Armed Forces Chemical Association. The fact that an article appears in its columns does not indicate the approval of the views expressed in it by any group or any individual other than the author. It is our policy to print articles on subjects of interest in order to stimulate thought and promote discussion; this regardless of the fact that some or all of the opinions advanced may be at variance with those held by the Armed Forces Chemical Association, National Officers, and the Editors.

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9TH ANNUAL MEETING OF THE A. F. C. A.

Rear Admiral Nathaniel S. Prime, USN (Ret.), First Vice-President of the Armed Forces Chemical Association since 1952, was elected President by the Board of Directors at the 9th annual meeting of the Association at the Shoreham, Washington, D. C., May 20 and 21.

President Prime took over the gavel from Col. Louis W. Munchmeyer, now the immediate Past President, at the closing period of the banquet program on May 21. More than 500 members and guests were present. The guest speaker for this occasion was General Curtis E. LeMay, Commanding General, Strategic Air Command, who had flown from his headquarters in Omaha, Neb., to keep this engagement. His address is printed in this issue. Among the guests at the speaker's table were another 4-star general, General Charles L. Bolte, Vice Chief of Staff of the Army; and the new Honorary President of the Association, Major General William M. Creasy, recently appointed Chief Chemical Officer of the Army. The National Anthem and other appropriate music was played by the United States Air Force Ceremonial Band.

The two-day session of the Association was supported by the United States Air Force in the role of host and carried out the adopted theme for this meeting, "Chemistry Flies." This term was coined by the planners to indicate the close dependence of aviation on chemical science and industry. The relationship was emphasized in speeches and also portrayed in elaborate exhibits pertaining to National Defense displayed in corridors of the Shoreham.

President Eisenhower Sees Exhibits

In several respects this first annual meeting of the Association to be held in the Nation's Capital was unique. Before it opened, the meeting having come to his attention, President Eisenhower had sent to the A.F.C.A. a message of greeting in which he noted the vast importance of the subject selected for the symposium, "Disaster Planning." This greeting, along with similar messages from high officials of various government agencies and professional groups, was printed in the souvenir program distributed to visiting A.F.C.A. members and guests. And then, after the meeting had opened, it so happened that President Eisenhower had occasion to be at the Shoreham himself and to pass with his group through some of the corridors where exhibits for the A.F.C.A. meeting had been installed. While pausing before the display of the Army Chemical Corps he was snapped by a photographer of the American Chemical Society. The resulting picture along with other scenes at the meeting taken either by the A.C.S. or the Air Force, is shown in this issue. In charge of the Chemical Corps exhibit at the time (standing beside the President in the picture) was 2nd Lieut. Glen Spieth.

Extensive Air Force Participation

The striking and informative exhibits of the Air Force, specially fabricated for first showing at this meeting, constituted in themselves an outstanding feature. But these exhibits were only one of the ways in which the Air Force took to heart the role of "host service," extending hospitality and contributing much to the meeting both in the way of professional interest and pleasure for the visitors.

Retiring President Munchmeyer, who has served two full terms congratulates President-elect Prime at general meeting of A.F.C.A. on morning of May 21.

Then, too, there was the display of the Atomic Energy Commission, several booths full of interesting matter, including a presentation pertaining to the preservative qualities of gamma radiation as illustrated by treated and untreated potatoes. It is understood that this was the first time that the A. E. C. ever made a public exhibit.

Well before the date of the meeting, advance reservations received for the banquet or other events had given promise of good attendance and wide interest in the program including the special arrangements for the ladies to visit the White House and several of the foreign embassies in Washington. The registration cards which were filled out at the Shoreham show that the meeting brought visitors from twenty-three states of the Union representing fifteen A.F.C.A. chapters.

While the meeting did not begin officially until the morning of May 20, the stage was set the night before. Most of the exhibits had been brought in and installed. President Munchmeyer and Meeting Committee Chairman Harry A. Wansker and Mrs. Wansker and a number of other officers and their wives were on hand to welcome early comers. The registration desk with personnel and equipment, the service furnished without charge to the Association by the Convention Bureau of the Washington Board of Trade, was set up to enroll the first arrivals.

Briefing at the Pentagon

On the morning of May 20 six Air Force busses with approximately 200 members and guests aboard pro-

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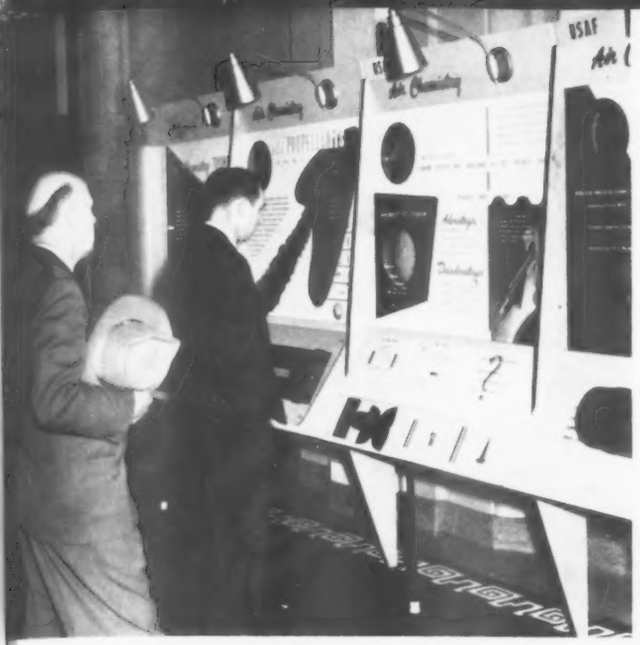

Visitors studying thought-provoking exhibits in the elaborate display of the Air Force in Birdcage Walk.

ANNUAL MEETING PICTURES

A.F.C.A. group in post theater for lecture at Andrews Air Force Base. (U. S. Air Force Photo.)

Part of Atomic Energy Commission exhibit showing use of radiation in preservation of food.

Scene at the exhibit area of the Army Chemical Corps. In foreground at left Col. Edwin Van Keuren, Commandant, Chemical Corps School, Ft. McClellan, Ala. and at right Major Joseph Schwimer of Camp Detrick.

A scene at the banquet. (U. S. Air Force Photo.)

(Annual meeting pictures except those marked U. S. Air Force were provided by the American Chemical Society.)

Scene at Air Force exhibit area. In background General Bullene, Retired, talks with Mr. H. A. Wansker, Chairman of the Annual Meeting Committee.

Special Air Force bus transportation provided for A.F.C.A. group visiting Pentagon and Andrews Air Force Base. Photo... loading at And...

ceeded from the Shoreham to the Pentagon where the visitors were met by Air Force guides, all field grade officers, and escorted to the auditorium. This evidence of consideration and efficient hospitality did not escape the notice of the visitors. There was much comment among them as to the very favorable impression which this reception by the Air Force had made upon them.

At the Pentagon auditorium, Colonel Robert W. Green of the Air Force Materiel Command was the master of ceremonies. He introduced as the first speaker, Mr. William H. Martin, Assistant Secretary of Defense for Applications Engineering. Mr. Martin welcomed the visitors on behalf of the Department of Defense and also spoke briefly of the Applications Engineering function which he described as the phase of the Department's administrative procedures which takes on where research ends and which engineers new development items to the point where their mass production is practical.

General Thomas White, Vice Chief of Staff of the Air Force was the next speaker. He discussed the subject of air force as an organized, balanced grouping of people, aircraft and air bases and also described various types of modern combat aircraft.

Brigadier General Benjamin S. Kelsey, Deputy Director of Research and Development in the office of the Deputy Chief of Staff for Development, told of the application of chemistry in air research and of the proportionate part of chemical projects in the Air Force research budget.

Safety Award is presented to Camp Detrick at Annual Meeting. Left to right Col. Harry A. Kuhn, Retired, who made the presentation; Col. John J. Hayes, Camp Detrick; Dr. A. G. Wedum, Camp Detrick; President Munchmeyer; Dr. Walter E. Lawson.

The last speaker was Col. M. A. Elkins, post commander of Andrews Air Force Base near Washington, where the headquarters of the Military Air Transport Service is located along with the headquarters of several of MATS' principal components, notably the Globe Communications Service and the Air Weather Service.

Andrews Air Base

On leaving the Pentagon, the visitors proceeded through Washington by the Air Force buses to Andrews Air Force Base. Unfortunately, the weather was unfavorable for flying and safety requirements dictated elimination of a number of interesting outdoor events which had been been scheduled. Accordingly, after having had luncheon at the Officers Open Mess, the group was taken for a bus tour of the post to the post theater.

The program there included a talk on the Air Force global communications system by Captain John Scott, and showing of technical films in color, one pertaining to plastics and the other showing extensive crash tests of aircraft in study of the causes of and possibilities for dealing with or avoiding the occurrence of fires in airplane crash landings. After this came a visit to hangars where various types of aircraft were on display. The group was then returned to the Shoreham.

Directors Meeting

The annual spring meeting of the Board of Directors was held on the night of May 20 at the Headquarters suite of the A.F.C.A. at the Shoreham. The Secretary-Treasurer submitted a report for the fiscal year 1953-54, which included a detailed statement of the finances of the Association as set forth in the report of the auditors. An analysis of the financial situation was presented by 2nd Vice-President Robert T. Norman. This analysis as well as a report of other developments of the Directors meeting was presented at the open meeting of the general membership the following morning.

A lively discussion took place among the Directors in considering a draft proposal submitted by Dr. Ralph E. Gibson for revision of the wording of the objects of the Association, as stated in Article II of the Constitution. Dr. Gibson and Dr. Walter E. Lawson had constituted a Committee to study the wording of this article and the possible need of its revision for consideration of the Ditors. It was agreed that a further revision of the proposal made would be prepared and submitted to the Directors again for their consideration.

Left to right President-elect Prime, Mr. Fred Jacobs, General Bullene and President Munchmeyer. Both Mr. Jacobs and General Bullene received awards.

General Meeting

President Munchmeyer called the meeting to order at 10:00 A.M. May 21 in the Main Ballroom. On the rostrum with him were President-elect Prime and Past Presidents Col. Harry Kuhn and Dr. W. E. Lawson.

A list of the Directors-at-Large recently elected by a general vote of the membership on a geographical basis was read. In addition to the announcement of the election

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THE WHITE HOUSE

WASHINGTON

May 10, 1954

TO THE ARMED FORCES CHEMICAL ASSOCIATION:

To all of you go my warm greetings and best wishes on the occasion of your annual convention.

In choosing "Disaster Planning" as the subject of your symposium, you have settled on a topic of vast importance. I earnestly hope that your meetings will be filled with the satisfaction of accomplishment and your visit to the Nation's Capital rewarding in every way.

Dwight D. Eisenhower

Greeting to A.F.C.A. from The President reprinted from Annual Meeting Souvenir Program.

President Eisenhower in passing through a corridor of The Shoreham paused to look at some of the AFCA annual meeting exhibits. He is pictured here at the Army Chemical Corps display where 2nd Lieut. Glen Spieth was in charge when the President came by.—A.C.S. photo.

of Rear Admiral Nathaniel S. Prime, Retired, as the new President, the election of the following Vice-Presidents was announced:

1st Vice-President: Dr. Ralph E. Gibson, Silver Springs, Md.

2nd Vice-President: Col. Robert T. Norman, Washington, D. C.

3rd Vice-President: W. D. Wilkinson, Chicago, Ill.

4th Vice-President: Capt. Paul I. Bauman, Baltimore, Md.

5th Vice-President: Harry A. Wansker, Cambridge, Mass.

6th Vice-President: Oliver Johnson, Annandale, Va.

7th Vice-President: Glenn Hutt, Cleveland, Ohio

2nd Vice-President Robert T. Norman presented an analysis of the financial situation of the Association. In this he noted that the expenses of the Association this past year had exceeded the income. (The amount of the excess was $1,268.61) Col. Norman expressed the view that the Association's assets are sound both as to size and composition, but he called attention to need for stimulating revenue both by increase of membership and sale of publication advertising.

President Munchmeyer commented on the activities of the Association during the past year stating that the ROTC Award program continued to be highly regarded. He referred also to the considerable attention given this year in A.F.C.A. publications to the Civil Defense program as having caused interest in the A.F.C.A., in the Civil Defense organization throughout the country. He also spoke of the continuing importance of the Technical Manpower program headed by Dr. Walter E. Lawson.

1955 AND 1956 MEETINGS

Announcement was made on May 21 that the Board of Directors the previous evening had decided to hold their annual meeting in 1955 in Boston. This had been vigorously requested by the New England Chapter. The 1955 meeting is to be held in Cleveland.

There followed presentations of Association Awards. First of these was a presentation of a bronze plaque for distinguished service to Mr. Fred M. Jacobs, retired Secretary-Treasurer. Mr. Jacobs, who was present to receive this award, was warmly felicitated on his attendance and received hearty applause. The next award was a framed scroll presented to Maj. Gen. E. F. Bullene, retired, former Chief Chemical Officer, in testimony of his aid and counsel during his period as Honorary President. President Munchmeyer next called upon Dr. Walter E. Lawson, Past President, to make the presentation of the Association's distinguished service award, a bronze plaque, to Maj. Gen. William N. Porter, retired, President of the New York Chapter and currently a member of the Manpower Committee.

A fourth award was the safety award made this year to Camp Detrick, Md., in accordance with customary practice to recognize outstanding safety progress at Chemical Corps Installations. The award, a bronze plaque, was handed to Col. John J. Hayes, Commanding Officer, Camp Detrick, who in turn passed it on to Dr. A. G. Wedum. Dr. Wedum in accepting the award as Safety Director at Camp Detrick, paid tribute to the cooperation of Detrick personnel in achieving the safety record which brought the award.

The Symposium

The symposium on "Disaster Planning" on May 21, was held in the Main Ballroom commencing at 2:00 P.M. The audience was estimated as approximately 400, the largest attendance of any of the sessions except the reception and banquet.

President Munchmeyer, in presiding, called upon Maj. Gen. William M. Creasy, Chief Chemical Officer, USA, as first speaker. This was in line with the intention of the Program Committee to highlight and give emphasis to Chemical Corps concerns in this symposium but not to confine the presentations to the chemical warfare field.

Much interest was attached to the information given by General Creasy of a type of fibre board developed by the Chemical Corps which will filter out toxic substances from air which passes through the board so that the material would be very useful for constructing protective shelters.

All of the four addresses given at the symposium, with some condensation dictated by space considerations, are printed in this issue.

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NEW SECRETARY-TREASURER

Lt. Col. Ovid E. Roberts, Jr., 63, of Silver Spring, Md., who served as an officer in the Chemical Warfare branch in the Army in both World War I and World War II, is the new Secretary-Treasurer of the A.F.C.A. He was nominated by President Prime on June 7 and the appointment was confirmed by the Executive Committee on June 22.

The appointment of Col. Roberts as Secretary-Treasurer follows the resignation of Col. John C. MacArthur, which became effective at the Annual Meeting. Col. MacArthur last March had given notice to the Executive Committee of his desire to relinquish the administrative duties which he had taken on in mid-year upon the retirement of Mr. Fred M. Jacobs. Col. MacArthur was re-elected as Editor for the forthcoming year.

Col. Roberts was born in New Rochelle, New York, and attended Cornell University, where he majored in chem-

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NATHANIEL S. PRIME

Toward the close of the banquet program at the annual meeting on May 21, President Munchmeyer, before turning over the gavel to the new president, remarked that he believed A.F.C.A. for the first time had a president who has never worn the Army uniform.

Nathaniel Scudder Prime, Rear Admiral, U. S. Navy, retired, our sixth president, in responding, promptly corrected that erroneous impression with a passing remark on his early service. He did not take time to relate, as his record shows, that somehow in his young life before he entered the Naval Academy he had managed to serve in New York's famous Seventh Regiment, which as a World War I unit in Federal Service was designated the 107th Infantry.

Admiral Prime was born in Yonkers, N. Y., May 25th, 1904. He attended Staunton Military Academy in Virginia, before entering Annapolis where he was graduated in 1926. Between that time and his coming to the Bureau of Ordnance in Washington in 1939 as an expert on ammunition and explosives, he had added greatly to his professional education. The record shows courses completed in Ordnance Engineering and Explosives at the Naval Post Graduate School; courses at other Navy schools—Submarines, Torpedoes, Chemical Warfare. In addition there was a detail as graduate student at the University of Michigan from which he earned a Master's degree in Chemical Engineering in 1936.

In the fall of 1942 Admiral Prime, then a Commander, was transferred to sea duty, and took command of a destroyer. We next find him early in 1943 in the South Pacific with Admiral Halsey's Third Fleet. For services there in action against the enemy, Commander Prime was awarded the Silver Star. In the fall of 1943 he received promotion to the grade of Captain and returned for duty in the United States.

Captain Prime was then assigned duty, under the direction of the Surgeon General of the Navy, to serve with the Special Projects Division, Chemical Warfare Service. He set up at Camp Detrick, Frederick, Md., the Naval unit, Special Projects Division, CWS, which at its peak, had a strength of 125 officers and 825 enlisted personnel stationed in four branches at Camp Detrick, at Vigo, Terre Haute, Ind., at Dugway Proving Grounds, Dugway, Utah, and at Horn Island, Mississippi. This duty continued until August 1945.

At the cessation of hostilities, Captain Prime was transferred to command of the Naval Ammunition Depot, Lualualei, Oahu, Hawaii. In 1946 he retired at his own request receiving promotion to the grade of Rear Admiral in recognition of outstanding services, for which he was specially commended by the Secretary of the Navy.

Admiral Prime has served on the Executive Committee of A.F.C.A. since 1951. He resides at Frederick, Md., where he heads the engineering firm of Prime, Inc.

NEW SECRETARY-TREASURER

(Continued from page 8)

istry. In World War II he served at Pine Bluff Arsenal, Arkansas, as Chief of the Procurement Branch and Contracting Officer. Between the two wars his activities included certain independent research work and service as Deputy Administrator of the Chemical Section under the National Recovery Administration, and Assistant Chief Metallic Salts Section of the National Production Authority.

In World War I Col. Roberts rose from enlisted man to major in the performance of duties in connection with gas defense training.

A. F. C. A. EXECUTIVE GROUP, 1954-'55

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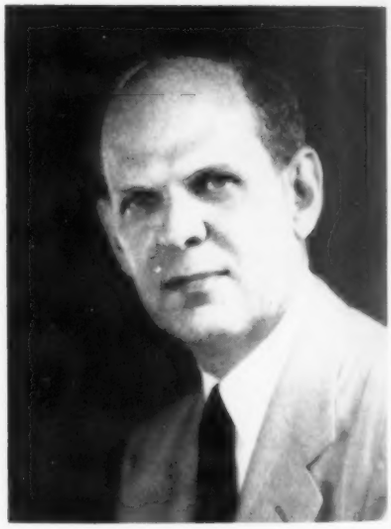

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DOW

NEW CHIEF OF THE CHEMICAL CORPS

William Murlin Creasy, who as Brigadier General had commanded the Army Chemical Center and the Chemical Corps Research and Engineering Division since 1951, was promoted to the grade of Major General on May 7, 1954, and the day following took oath of office as Chief Chemical Officer of the Army, succeeding Maj. Gen. E. F. Bullene, who had retired from active duty on March 31.

In his new capacity as Chief Chemical Officer, the tenth since the chemical branch was established, General Creasy, in accordance with the terms of our constitution, is the Honorary President of the Armed Forces Chemical Association. A statement from him to our membership furnished on request of the Journal is printed in the accompanying box.

Congratulations upon his promotion and new assignment as a technical service chief together with expression of the Association's pleasure in having him as its new Honorary President were extended to General Creasy at the 9th annual meeting of the Association held in Washington, D. C., May 20 and 21.

Born in Wilmington, North Carolina, April 26, 1905, General Creasy was graduated from the U. S. Military Academy in 1926. After a period of duty with the Army Air Corps, he transferred to the Field Artillery in 1927 and in 1929 joined the Chemical Corps. Early in his career in the chemical branch General Creasy attended Massachusetts Institute of Technology as a graduate student, obtaining the degree of Master of Science in Chemical Engineering in 1936. He is a graduate of the Command and General Staff School and the Army and Navy Staff College.

In World War II General Creasy served in the China-Burma-India theater of operations as assistant chief of staff for plans with station at New Delhi, India, and later as chief of the U. S. Plans Section of the Allied Forces in East Asia, with headquarters at Ceylon. In May, 1945, he was assigned to the U. S. Forces in the China theater, became deputy commander of the Services of Supply there, and in March, 1946 he was named chief of the Planning Section of the Nanking Headquarters Command. Returning to the United States in 1946, he served in various key positions in the Research and Development Division of the War Department General Staff until May, 1948, when he resumed duty in the Chemical Corps. He was promoted to Brigadier General in July, 1951.

General Creasy has been awarded the Distinguished Service Medal, Legion of Merit, Bronze Star Medal and Army Commendation Ribbon.

MAJOR GENERAL WILLIAM M. CREASY

STATEMENT FROM GEN. CREASY

As I assume the duty of Chief Chemical Officer of the United States Army, I feel gratified to know that the Armed Forces Chemical Association stands so solidly behind the Chemical Corps and its vital mission in the National Defense.

Today the free world faces its most challenging period in history. It behooves us in the chemical, biological and allied fields to consider the capabilities and potentialities of the CBR family of weapons. These may prove to be the most telling arguments in preventing war and, if a conflict is forced upon us, a principal means of insuring ultimate victory. It is my hope that the Association, through the media of its chapters and the Journal, will make every effort to further a public understanding of these facts.

WILLIAM M. CREASEY,
Major General USA,
Chief Chemical Officer.

CORPS' 36TH BIRTHDAY

The Journal is pleased to have the privilege of reproducing here (see accompanying page) the message to the Chemical Corps by General M. B. Ridgway, Chief of Staff of the Army, marking the 36th anniversary of the establishment of the Corps on June 28, 1918, as a separate and distinct branch of the Service.—Editor

UNITED STATES ARMY
THE CHIEF OF STAFF

TO THE MEMBERS OF THE CHEMICAL CORPS

The 36th anniversary of the establishment of the Chemical Corps provides a fitting occasion for me to extend, on behalf of your fellow soldiers, congratulations to you who are its members.

Throughout the existence of your branch, it has compiled a record of solid scientific achievement, not only with respect to the uses of chemistry in war but also with respect to its uses in peace. In addition to their scientific accomplishments, Chemical Corps troops have served in action with gallantry and distinction.

These achievements constitute valuable contributions to the effectiveness and traditions of the Army. They provide an inspiration to all of you in meeting your responsibilities today and in the future.

M. B. RIDGWAY
General, United States Army
Chief of Staff

9TH ANNUAL MEETING

(Continued from page 8)

An unusual feature for the A.F.C.A. of this year's meeting was the provision of elaborate exhibits by government agencies and also a number of corporate member companies that contributed to the souvenir program, and exhibits by co-operating professional societies.

The Air Force display, specially fabricated at Wright Air Force Base, Dayton, showed the far-reaching applications of chemistry to aircraft production and operation. The main display extended through the length of the Shoreham corridor known as Birdcage Walk. Then there was also a large indicator piece in the front lobby signalizing the theme "Chemistry Flies."

The Army Chemical Corps brought in its extensive group of display panels to which several features have been added since the exhibit was first built. The Atomic Energy Commission and Civil Defense Administration were also well represented.

The American Chemical Society and the Synthetic Organic Chemical Manufacturers Association also had displays.

The special program for ladies on May 21 provided a full day of visits. From comments heard this feature of the meeting was a complete success. Two buses had been chartered for the day. Approximately 75 ladies comprised the group. The first stop was at the White House at 9:00 A.M. and further morning visits were then made at the Indian and Indonesian embassies, where attractive programs of hospitality had been provided for. Following luncheon, which was fully arranged for by the Committee, the group was taken through the new Moslem Mosque and the Islamic Center buildings, Massachusetts Avenue, now nearing completion. The final visit of the day was at the Pakistan Embassy for tea.

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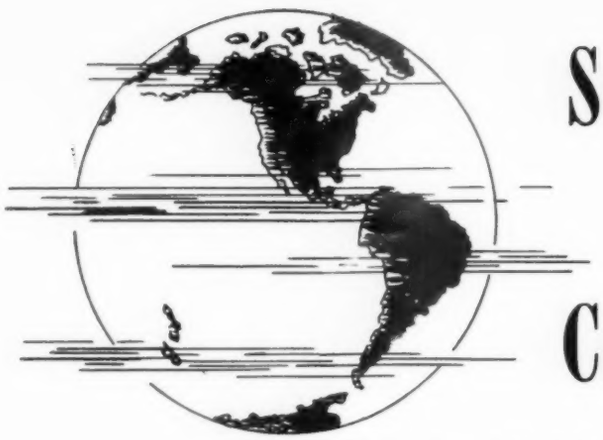


Strategic Air Command

More than 500 A.F.C.A. members and guests hear of the constant readiness of this great air arm and its ability to strike any target anywhere in an address before the Association at the Shoreham, Washington, D.C., May 21, by—

General Curtis E. LeMay

S.A.C. Commander

Mr. Munchmeyer, Distinguished Guests, and Gentlemen:

It is a pleasure to meet with you tonight. I feel honored in having been asked to speak before this important audience, and I hope my discussion will contribute to your further understanding of air power and its potential role in preserving world peace.

As we all are very much aware, our nation is passing through a dangerous period of tension and threat. This insecurity has been brought about by the calculated pressures of militant communism. Moreover, the avowed Soviet doctrine of world domination has endangered our philosophy of government, our way of life, our spiritual and cultural values.

Exposed to these dangers, it has become necessary for us to build and maintain a bulwark of military strength equal to the task of adequately shielding the Western World from the constant threat of aggressive communism. Our national objective continues to be to secure world peace with international stability. But since the Kremlin exploits weaknesses, this overriding objective is now supported by the growing strength of our military might.

The measures now being taken to assure the military security of the United States are, of course, greatly influenced by the nature of the potential threat, and the resources available to us.

Obviously, if a general war should come, it would not be possible for us to match man-for-man the military forces the Communists could put into the field in Europe or Asia. Nor do we have a geographical advantage. The Soviet Union controls the earth's broadest land mass, and its sources of power are deeply insulated from attacks by land or sea.

The increasing capabilities of our Air Force, however, provide a powerful deterrent to any potential enemy whose superiority lies largely in manpower and geography. What counts is not numbers or land mass, but striking power.

There are those of us who believe that continued emphasis on air power, and the promise of swift and certain retaliation, can greatly diminish the danger of a global war. This is the particular aspect of our military preparations that I propose to discuss with you tonight.

Organization and Mission of the S.A.C.

As many of you know, the U. S. Air Force's major offensive striking power is contained in the Strategic Air Command. In the time available to me, I should like to briefly outline for you the organization of the Strategic Air Command, the human and material resouces available for accomplishing its mission, and something of its present combat capability, with respect to readiness, range and mobility.

The Command headquarters is at Omaha, Nebraska, almost in the center of the United States. For peacetime operations, we have three Air Forces—the Second Air Force, which generally controls bases in the Eastern part of the nation; the Eighth Air Force, which controls bases in the Central part of the country, and the Fifteenth Air Force, for the Western part of the United States. We also operate "advance" bases in England and North Africa.

Under the current 137-wing Air Force program, the Strategic Air Command is building toward 54 combat wings by 1957.

Our tools are the intercontinental heavy bombers, medium bombers with their supporting air refueling tankers and strategic fighters. The present heavy bomber is the B-36, which can deliver bombs against potential targets from bases in the United States. As our medium bomber, we have the B-47 Stratojet, and a number of B-50 and B-29 Superforts, which are being phased out. Our strategic fighters which might escort the bombers and protect the bases, are the F-84G Thunderjet and the F-84F Thunderstreak.

That, very briefly, is the material composition of the Command. Now, the mission.

Simply stated, the job assigned to Strategic Air Command is to create and keep in instant readiness a capability to deliver our major weapons against targets designated by the Joint Chiefs of Staff.

If the world should be plunged into total war, one of our primary objectives would be to win the air battle. While air defense units here at home hammered at the enemy attack, the long-range bomber force would bring our major weapons to bear directly against his muscle and heartland. This strategic offensive would enable us

to hit the enemy's air bases and atomic installations, destroying his striking power at its source in the earliest phase of the war. This long-range offensive would be an important means of stopping aerial attacks against this country.

Another objective of the air offensive would be the overall, systematic destruction of the enemy's industrial capacity and other sources of power through coordinated attack against a great number of selected targets. The strategic bomber is the only means by which we could deliver our decisive weapons against the potential enemy's important war-making resources.

A third task is to be ready to respond to a theater commander's request to furnish air power to retard the advance of enemy ground forces.

Because of its extremely important strategic mission, this force would not normally be used in fighting what have come to be called limited wars or brush fires. But the strategic force must stand ready to go into action, as it was when the Communists overran South Korea, if such local wars should spill over into a global war of decision. The readiness of our strategic bombers to strike back on a global scale is a considerable factor, as you can appreciate, in discouraging the spread of a limited war.

In a way, ours is a simple job, rather straight-forward. We know who the potential enemy is, and we know what we are likely to run up against. All we have to do is to be ready.

Readiness Basis—War Starts Today!

When? Tomorrow? Next week? Next year? We certainly do not know when we might be called into action, and earnestly hope the answer is "never.". Yet, we must assume that the time is now, today. Everything we do, every motion we make, is based on that assumption—today.

Of course, we have the bomb. But the most important item is the crew. We conduct an elaborate training program to insure that the efficiency of the crews that would carry out the mission will be maintained. They are constantly being evaluated to prove and improve their efficiency.

I am sure the questions that interest you—as they do me— are, "Can the crews navigate to the target?" "Can they hit the target when they get there?"

The answer to both questions is, "Yes!" This is not based on an opinion or an assumption, but on actual data collected from thousands and thousands of training sorties.

Our navigators can depart on a mission in any kind of weather and fly direct to within a few hundred feet above any designated point on the globe.

And they can hit their target when they get there. Our simulated bombing runs are not made against a white circle painted in the desert, but against actual industrial areas. These runs are scored by radar on the ground, and we know with certainty what the accuracy would be. Last year, for example, our aircraft theoretically destroyed industrial centers in almost every city in the United States with a population of more than 25 thousand. These simulated bombing missions were carried out by day and at night. Almost all were at high altitudes. Each sortie was scored and crew performance evaluated.

We have all the data tabulated so that we know what accuracy to expect under various conditions. I assure you that the accuracy is sufficient to destroy any targets we may have to go after.

Another crucial question is penetration. Can our crews penetrate an air defense system and do their job? This is much more difficult to evaluate, because we cannot be as realistic in solving this problem as we can be some other aspects of training. We and the Air Defense Command often engage in mutual training exercises. We do not shoot at each other, of course, but we are as realistic as possible. Of course, we tabulate our results. So far our experience shows that we can do our job. This takes into account the modern weapons we expect to be using in the future.

The Korean War provides another yardstick. The B-29, our oldest bomber, operated against the MIG in that very restricted area with little room for maneuver and limited tactical flexibility. Yet, they bombed with a loss rate that is less than our accident rate. We do not believe, of course, that the type of air defense in Korea will be the type that we could expect in the future. Nevertheless, all of our experience indicates we can do the job. I believe it. And what is more important, the crews that fly the planes believe it.

Our training is pointed towards developing precision and reliability among the hundreds of crews that comprise the force, and the thousands of maintenance men that keep it in operating condition.

A typical radar observer—the individual who will actually aim and release the weapons in event of war—must make a specified minimum number of simulated attacks on target complexes in major cities each month. He must practice bombing by radar, bombings under visual conditions, and bombings by using a camera. He must also drop a number of actual bombs at our bombing ranges. Other crew members have similar heavy training schedules.

Besides individual crew training, four times each year each of our combat units is required to fly a simulated combat mission which duplicates the distance and other characteristics of the mission that unit would expect to fly if the nation was suddenly plunged into a major war. We carefully evaluate all phases of these missions. It gives us a good measure of each unit's ability to mount an actual bomb strike on short notice.

A SAC combat wing can expect to be deployed to an advance base overseas once a year for a temporary period of training—usually a three-month period. These training exercises outside the country give our crews valuable mobility experience. They learn how to move out in a hurry, and become familiar with operational conditions and problems all over the globe.

General Le May addressing annual banquet of the A.F.C.A., at The Shoreham, Washington, D. C. May 21, 1954. Left to right: The Hon. Val Peterson, General Le May, President L. W. Munchmeyer and General Charles L. Bolte.

A high degree of mobility is extremely important. The equipment necessary to operate our planes for about 30 days is packed and ready in special kits which can be loaded in the bomb bays on a moment's notice. The crews keep their personal affairs, such as medical records, up to date. We are determined to be ready to fight now—not tomorrow or next week.

The importance of our advance bases overseas is that they would permit us to operate with greater effciency and greater flexibility. With forward bases, we can launch more strikes at a greater rate. Also, they multiply an enemy's attack problems.

The range of our medium bombers, which might operate from these forward bases, can be extended by air refuelings from tanker aircraft. Practice in air refueling our medium bombers—and our fighters— has become as much a part of our training as take-offs and landings. Accomplishing an air refueling is something like driving your car down a winding road behind a gas truck and trying to hook up a pipe from the gas truck to your car radiator. It requires hard work and some precision formation flying, but it is being done consistently and safely. On many missions, we can and do refuel aircraft more than once, day and night. Last year our planes made just under 16 thousand hook-ups with tanker aircraft at pre-determined rendezvous points, transferring 11 million gallons of fuel. This averages out to a refueling operation each 15 minutes every day of the year.

Forward bases overseas and the capability for refueling in flight contribute to our flexibility and, even more important, to our global mobility. We conduct a rather heavy and extensive maneuver schedule to exercise these bases and test our mobility.

In the next 45 days we will deploy several hundred bombers to and from bases in England, North Africa and the Far East as a routine phase of our year-around training program. A wing of B-47 Stratojets normally based in California will be deployed to an advance base in England. These 45 jet bombers will fly to England non-stop, utilizing air refuelings, and will spend about 90 days overseas. It takes about 12 hours to fly from Los Angeles to London in a Stratojet. As this wing moves overseas, our B-47 wing now training in England will return to its home base in Arizona. In the same period, two squadrons of our B-36's will fly to England for a two-weeks exercise. Later next month, still another B-47 wing will leave its base in the south and fly to England for a period of training. As this wing crosses the Atlantic, the wing of B-47's now training in North Africa will return to its home station in Louisiana. And, finally, we are deploying a B-50 medium bomb wing to one of the Pacific bases, and returning a B-29 wing from Okinawa.

These movements are typical of our program for developing and maintaining global mobility. They indicate that we can move our bombardment units over much of the world with comparative ease.

I am sure you appreciate the necessity for our global mobility and instant readiness.

Looking back at World War II, you will recall that it took three long years—years during which our own industries were not molested by air attacks—for us to build a bomber force capable of delivering significant and decisive tonnages against Germany and Japan. You know of the destruction caused by our bombers over Germany once we were able to mount sizeable raids. It influenced the outcome of the war in Europe.

I am sure you will recall, also, that two bombing raids with, in each case, a single B-29 carrying a single bomb, destroyed two cities in Japan doing the work of conventional bombers.

The advances in aviation since then have been rapid and revolutionary. During World War II, B-29's operating out of Guam took fifteen hours for their missions to Tokyo. Today's B-52 could make *two* round trips between Guam and Tokyo in much less time.

In the past ten years, the performance of our aircraft has improved more than 100 percent. And there has been a thousand-fold increase in the power of weapons delivered by air. The high-performance planes of today can be deployed over any part of the globe, in any weather and at extreme altitudes. Armed with nuclear weapons, a single wing can now deliver to any reachable target a destructive cargo exceeding in power the bombs that fell on Britain in all of World War II.

These are examples of the present-day potency of air power.

It is obvious that any possible future world war will be fought and won with the weapons that are on hand the day the war breaks out.

Superior air power offers the only real prospect of neutralizing the massive manpower and geographic advantages held by the Communists. I believe you will agree that as long as half the world refuses to listen to reason and respects only force, America must maintain our present slim margin of air superiority. It is our best assurance of preventing a global war, or if that proves impossible, of winning one.

The chemical industry, which has Progress as its watchword, plays an increasingly important role in the research and development programs that are essential to the furtherance of our national air strength. I am confident we can continue to rely on you for the same invaluable help that you rendered in the past.

CHEMISTRY CONFRONTS THE CONTINENTALS

GENERAL WARREN
in the dress of a
MINUTE-MAN

THE
MASSACHUSETTS LINE
from BARBIER'S painting of
YORKTOWN

By WYNDHAM MILES

Chemical Corps Historical Office
Army Chemical Center, Md.

With gunpowder in "short supply" our Revolutionary forefathers turned to their own devices for this essential war chemical. As one might guess, Benjamin Franklin had a hand in the enterprise. The Journal believes Mr. Miles gives us here a valuable contribution to American military and chemical history.—Ed.

SEVERAL MONTHS before the first shots of the Revolution echoed over the village green at Lexington, the science of chemistry was called on by the Continentals for assistance in the coming fight for American freedom. In October, 1774, the British government by means of Orders in Council forbade the further importation of gunpowder and saltpetre into the colonies. This placed the Americans in a serious predicament, since for years they had been importing their supplies from Europe and the East Indies, and had no facilities for manufacturing them at home. Not that the colonists had been backward in attempting the manufacture of powder, for mills had been erected in America as early as the 1670's, but the business had been too risky, the competition from European manufacturers was too keen, and there was difficulty in finding superintendents who knew how to erect and run the mills. In the manufacture of saltpetre, which made up 75% of the powder, there was no danger involved, but the colonists were simply ignorant of the details of the process, and they had always been able to import all they needed from the East Indies or Europe.

After the British government cut the colonists' supplies from the outside world, they went about gathering powder that the colonists had stockpiled. General Gage took the Charlestown arsenal, Governor Dunmore laid hold of the powder in the magazine at Williamsburg, and a detachment of redcoats marched out of Boston in April, 1775, toward the powder stored at Concord and the opening skirmish of the war.

The Continentals responded to the British moves in several ways. They seized stores of British powder wherever they were able; they took steps to bring in powder and saltpetre from the West Indies and Europe through the British fleet; and the individual colonies tried to stimulate domestic production.

40 Tons of Powder at Start of War

Still, in spite of all the colonists' efforts, by the time the rebellion reached the fighting stage it is estimated that the total quantity of powder available for the Continental forces was only forty tons. Only forty tons to supply an army around Boston, to help local contingents throughout the colonies, and to aid Arnold's force in Canada. The situation was so serious that not one of Washington's sentries stationed in a thirteen mile chain around Boston had an ounce of powder.

The first American move to produce powder and saltpetre was taken by the individual colonies. Massachusetts Bay started in December, 1774, by urging its citizens to prepare powder and saltpetre.

The legislatures offered prizes for the first or best specimens of the munitions, and for the first mills to be

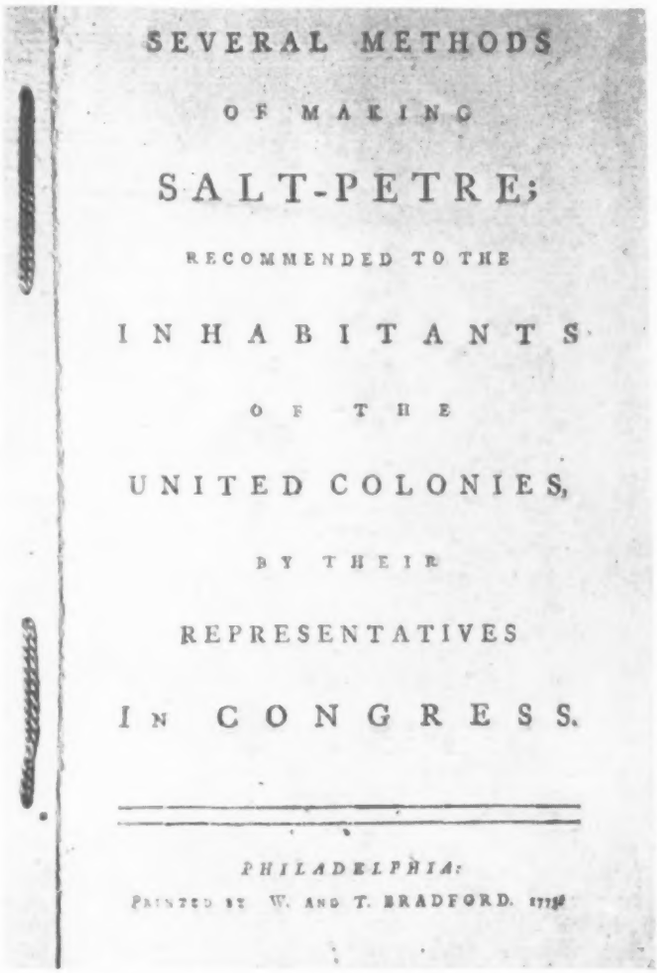
erected and turn out a specified quantity of powder before a definite date. They offered to purchase powder and saltpetre at a very liberal price, and in addition held out a bounty for each pound of the materials produced within a limited time. Committees were appointed to study the different processes for manufacturing saltpetre used in their own and in neighboring colonies, and to publish a description of the most suitable method. And finally the legislatures actually subsidized the erection of powder mills and saltpetre works.

A few examples of colonial legislation will illustrate the extremes to which the Americans were forced by the gravity of the situation. In December, 1774, the Provincial Congress of the Colony of Massachusetts Bay recommended that old ruined mills be repaired and that new mills be erected. In January, 1775, North Carolina offered premiums for the first and the best specimens of gunpowder and saltpetre produced in the colony, and later offered a prize of £150 for the greatest quantity of sulfur satisfactory for use in making gunpowder.

Bounty to Stimulate Production

In August, 1775, after the outbreak of the conflict, the House of Representatives of Massachusetts appointed a committee of three men to apply themselves to the manufacture of saltpetre for three months in order "to discover the most eligible and successful method of manufacturing that important commodity, and to communicate all the useful knowledge they shall acquire in said business to all such as request it of them." Four months later one of the committee, Dr. William Whiting, was directed to travel to Connecticut and to interview "such person or persons as upon enquiry he shall suppose to be best skilled in the said art; and after gaining the best information to be obtained relative to this matter, that he repair with Deacon Baker, another of said committee, directly to Newbury-Port, and that they with Capt. John Peck, the other of said committee, use their utmost efforts until the fifteenth day of December next, for obtaining a successful and sure method of manufacturing said commodity." The committee was empowered to pay a bounty of four shillings for each pound of saltpetre made in Massachusetts before the month of June, in addition to the price of half a dollar a pound already offered by the legislature.

In December of the same year, "his Majesty's English Colony of Connecticut, in New-England, in America" passed an "Act for encouraging the Manufactures of Salt-Petre and Gun-Powder," in which they offered a "premium or bounty of ten pounds for every hundred pounds weight of good and merchantable saltpetre" produced in the colony between June 1, 1776 and January 1, 1777, provided that the manufacturer make public, upon the request of any person, "a full account of the materials, out of which, and the process by which such saltpetre or nitre is made." In those Connecticut towns where there were no salt-petre works, the selectmen were "authorized and enjoined, at the expence and for the benefit of said town, to cause such works to be erected, and said manufacture to be carried on in the same accordingly." Further, the legislature felt it was necessary that two powder mills be erected immediately, and it offered a premium of thirty pounds "to the person or persons who shall erect the first powder-mill in this colony, and shall make and manufacture therein five hundred pounds weight of good and merchantable gunpowder."


SEVERAL METHODS

OF MAKING

SALT-PETRE;

RECOMMENDED TO THE

INHABITANTS

OF THE

UNITED COLONIES,

BY THEIR

REPRESENTATIVES

IN CONGRESS.

PHILADELPHIA:

PRINTED BY W. AND T. BRADFORD. 1775

Figure 1. Title page of directions for the manufacture of saltpetre, issued by a committee of the Second Continental Congress.

Continental Congress Attacks Problem

Until June, 1775, the efforts to stimulate the production of munitions were made by the individual colonies rather than by the colonies acting together as a unit. Then on June the tenth the Second Continental Congress took up the problem and decided on a program which it hoped would encourage the production of munitions. The Congress recommended that centers for the manufacture of powder be established in New York and Philadelphia, and that the northern and middle colonies collect and send saltpetre and sulfur to these centers for incorporation into powder. It also recommended that the southern colonies manufacture powder, but did not suggest any definite sites as manufacturing centers.

These recommendations were mild compared to the extreme action taken by the colonial legislature; but another act of the Congress, the appointing of a committee "to devise ways and means to introduce the manufacture of salt petre" was probably of considerable importance in stimulating the efforts of the individual colonies. This committee, composed of Benjamin Franklin, Richard Henry Lee, Robert Treat Paine, Philip Schuyler and Thomas Johnson, carried out its assigned task by compiling data on the large and small scale production of the salt, and then publishing the methods they considered to have the most widespread usefulness in a twelve-page pamphlet, "Several Methods of Making Salt-Petre; Recommended to the Inhabitants of the United Colonies, By Their Representatives in Congress" (Philadelphia, 1775) (figure 1).

The text of the pamphlet was made up of three short articles, each intended for a different group of readers but all related to the general problem of preparing salt-

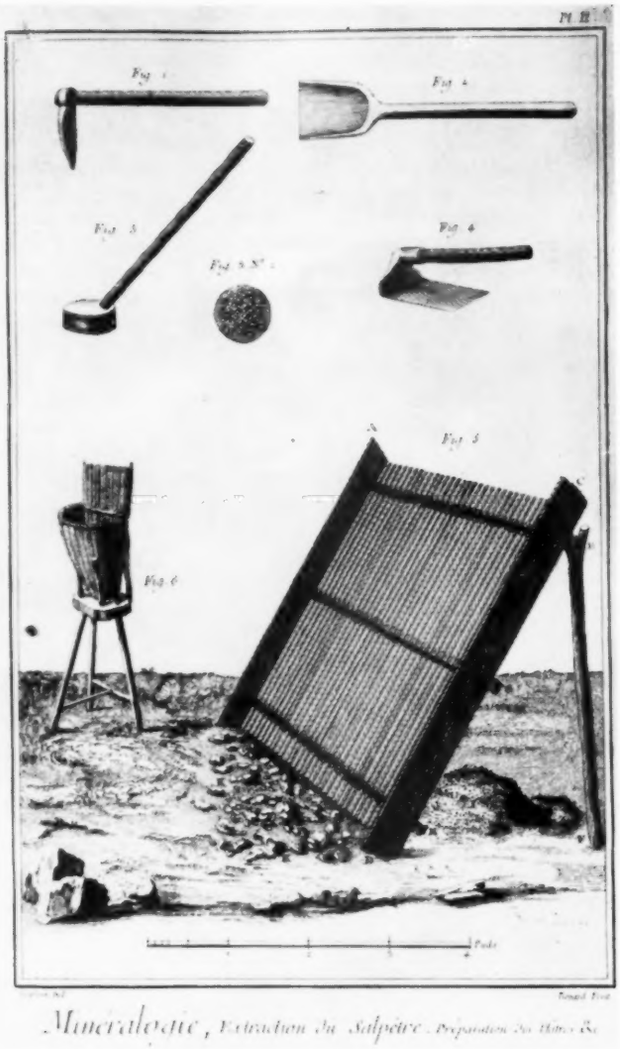


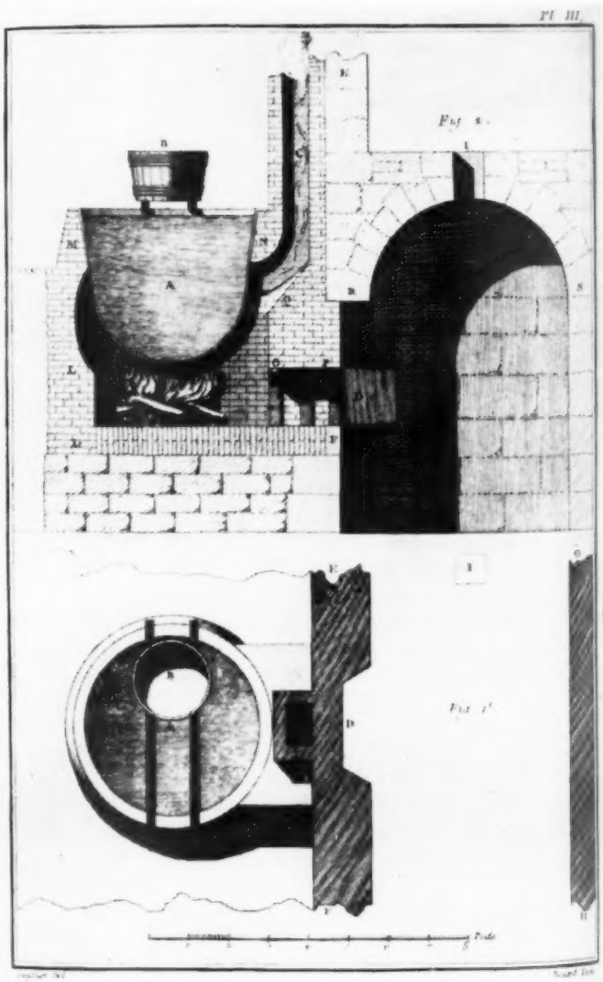
Figure 2. This illustration shows the tools of the workers, and the wooden screen through which the saltpetre earth was thrown to separate it from rocks.

petre. For southern planters and middle and northern tobacco farmers, the commitee gave detailed instructions for the preparation of saltpetre from the dirt floors of "tobacco houses, stables, cow houses, hen and pidgeon houses, and in any covered place, where the influence of the sun seldom reaches." They assured tobacco farmers that the earth from the floor of a sixty foot tobacco house would yield "upwards of sixteen hundred weight a year, and so in proportion for larger or smaller houses." For potential industrialists who might consider going into the saltpetre business on a large scale, they included a brief description of a process that Benjamin Franklin saw in operation in a nitre factory in Hanover, Germany, in 1766. Franklin claimed that the factory he inspected supplied sufficient saltpetre to prepare all the gunpowder required by the troops and forts of the King of Hanover. The final essay, for readers who might be interested in information with a scientific flavor, was a paper by Benjamin Rush, Professor of Chemistry in the Medical School of the College of Philadelphia (now the University of Pennsylvania). Rush, the first Professor of Chemistry in an American college, and a signer of the Declaration of Independence, had been interested in the manufacture of saltpetre for some years and had even included a discussion of the subject in his lectures at the college. His paper included extracts from the works of the famous European chemists, Johann Andreas Cramer and John Rudolf Glauber, and an outline of experiments in which he obtained an ounce of saltpetre from a half pound of tobacco stalks.

Instructions to Tobacco Growers

Although the methods suggested in the congressional pamphlet differed in their details—on tobacco farms the source of the potassium that entered into the potassium nitrate would be tobacco stalks, whereas in other places it might be wood ashes—they were basically the same. The method recommended for tobacco farmers illustrates the primitive nature of this early chemical process: "In order to prepare the floors for attracting Nitre, all dung and other trash must be removed; and if the floors are not level, they must be made so by laying on marle, or any soil not too stiff, which must be lightly trod down with their feet. The floor being thus prepared, sprinkle strong amber over it, made from tobacco trash and cover

Figure 3. Kettle in which saltpetre solution was concentrated by boiling. The basket on top held trash skimmed from solution.



(The Journal and the author wish to extend credit to the Smith Collection in the History of Chemistry, University of Pennsylvania, for the photographs used with this article of saltpetre making equipment in the Eighteenth Century, and excerpts from instruction pamphlets on making saltpetre and gun-powder, published in the American Colonies. The processing equipment pictures are from the French Encyclopedia of Diderot and are believed to represent in general the types of equipment used by the Continentals.

The drawing at the head of this article was kindly contributed by Mr. Robert Ball of New York, illustrator, who has specialized in the Revolutionary War period.—Ed.)

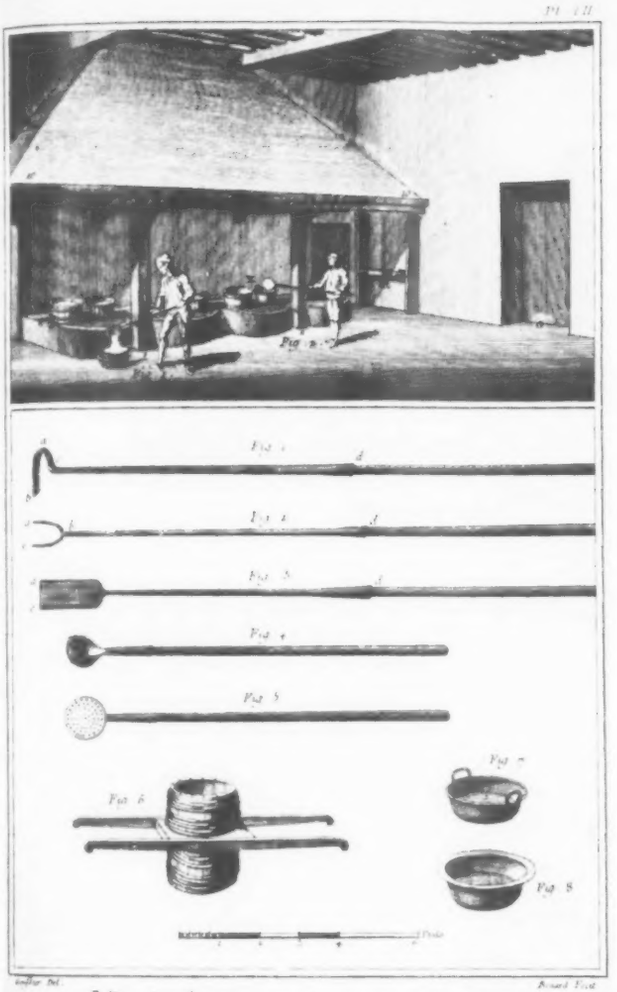


Figure 4. Worker at top right is draining off salt-sodium chloride—which has crystallized from the solution. Worker at left pours out concentrated saltpetre solution into a copper basin.

it with wet ground leaves, or other tobacco trash for a fortnight; then clean out the trash, and in any cool dry morning that succeeds, you will find on the floor the Nitre attracted and condensed like hoar frost; sweep this off lightly, and put it by in hogsheads, or other safe place in a house, until you have leisure to go through the following process: This work you must carefully repeat as often as you observe the above mentioned appearance of Nitre on your floors; but which means you will soon be furnished with a competent quantity to employ a leisure day. Process. Make a lee from this earth, in the same manner as is usually done for soap, noting that the earth is not to be hard packed on the straw in the bottom of your lee vessel, which would retain the water to be poured on it too long, and overcharge it with saline particles, to the great interruption of the process: Place the earth hollow in the vessel, for the reception of the water: the first put to it must be warmer than new milk from the cow, afterwards add cold water; fix a vessel to receive the lee as soon as you begin to put the water in, as it will not remain long upon the earth, but in a few minutes begin to drop into the receiver; as soon as it has dropped a gallon, you may begin to boil it in a cast iron pot: every bushel of earth will require near 8 gallons of water; continue to boil it gently until you have fully charged your pot with the lee and you will find the watery particles evaporate, until it is reduced to a thick oily consistence, shooting into small icy crystals, which you will easily perceive, by exposing the suds in a spoon to a cold place, then put the liquor out of the pot into waited wooden trays, and set it by in a cool place for the first growth; if you accidentally boil it too thick, add a little cold water; when your trays have stood with the suds a few hours you must raise one end to let the lee drain off from the Salt Petre, which is the first growth, and which, by boiling a second time, will yield you a fresh quantity. After it is thus drained and become dry, you may put it into casks or tubs, until you have leisure without prejudice to your crops, to refine it."

Refining and Clarifying Processes

The saltpetre was refined by heating it in an iron pot until the bottom became red hot, and "the matter will appear like boiled cream; and when it becomes whitish and liquid, pour it upon a stone, or some earthen vessel or a hard well rammed earthen floor, clean swept." When the saltpetre became cold and solid, it was put aside until there was time to clarify it.

Clarification was done by dissolving the salt in water (one pound of saltpetre to six pounds of water), heating the solution to the boiling point, pouring it into trays where the sediment was allowed to settle, decanting the solution, and then evaporating it over a gentle fire until it became so concentrated that "in a spoon it will shoot into chrystals." The warm solution was poured into wooden trays, the inner surface of which had been increased by the insertion of wooden fences, and allowed to cool and crystallize. The saturated solution was then decanted, and the crystals allowed to dry in the air for a few days before they were ready for use. The saltpetre remaining in the mother liquor was obtained by concentrating the solution over a fire and repeating the crystallization. The recrystallizations were repeated until all the water had been evaporated, and all the saltpetre was obtained.

It was recommended that the earth from which the saltpetre had been extracted, and all the washings from the vessels, be spread out on the floor of the tobacco house or stable "as it continues to be peculiarly proper to attract and absorb the nitre floating in the air," and could thus be reworked.

As soon as the pamphlet "Several Methods" was published, copies were sent throughout the colonies. One copy which went north passed into the hands of Isaiah Thomas who reprinted it in the September 6 issue of his newspaper, "The Massachusetts Spy." Another copy was obtained by the General Assembly of Massachusetts Bay, supplemented by additional material, and issued under the title, "Several Methods of Making Salt-Petre: Recommended to the Inhabitants of the United Colonies, by the Honorable Continental Congress, and Re-Published by Order of the General Assembly of the Colony of Massachusetts Bay. Together with the Resolve of the said Assembly, and an Appendix, by Doctor William Whiting" (Watertown, 1775). A copy was obtained by the Committee of Safety of New York, reinforced by the inclusion of additional material, and then published as "Essays Upon the Making of Salt-Petre and Gun-Powder" (New York, 1776). A section of the pamphlet was even reprinted by John Nathan Hutchins in his almanac, "Hutchin's Improved; being an Almanack and Ephemeris of the Motions of the Moon: . . . for the Year of our Lord 1776" (New York, 1776).

We do not know, of course, to what degree the congressional pamphlet and its various reprints aided the American army in its search for munitions. But we are

probably correct in assuming that thousands of pounds of continental gunpowder were milled from saltpetre painstakingly produced on the farms of the country.

Large Scale Method Attempted

At least one effort was made to produce saltpetre on a large scale in the colonies. This was in Philadelphia where the Committee of Safety took over a house on High Street—the Market Street of today—and converted it into a saltpetre factory which they placed under the direction of a committee made up of Benjamin Rush and several other men. After the process used in this small plant had been standardized by trial and error, the committee published a description of the method in a six-page pamphlet, "The Process for Extracting and Refining Salt-Petre, according to the Method Practiced at the Provincial Works in Philadelphia" (Philadelphia, 1776). The committee recommended their process as being based on "the experience of many in the provinces, and particularly in Philadelphia, and the town of York." The directions were quite detailed, and could easily have served as a guide to any ambitious patriot looking for a way to supplement his income.

In this period household industries flourished in the colonies, and there is little doubt that settlers often produced small quantities of gunpowder in their own homes. To encourage this practice and thus build up a steady domestic source of munitions for the continentals, directions for manufacturing powder were printed and circulated as had been done for saltpetre.

How much saltpetre was produced in the colonies during the war? The amount cannot be accurately determined now, but an estimate has been made of more than eighty thousand pounds, which would have served for more than one hundred thousand pounds of powder. This, however, was only a small fraction of the total quantity of powder needed to carry on the struggle, and it was fortunate that we held the friendship of France and were able to obtain most of the munitions we needed through the aid of that country.

This first application of chemistry to an American military problem was admittedly a crude affair, and was soon forgotten. Similar situations, however, such as the need for immediate domestic production of military chemicals, the subsidization of chemical manufacturers, and the marshalling of scientists and scientific resources, were to arise again in future wars, and were to result one hundred and fifty years later in the organization of a branch of the army devoted exclusively to military chemistry, the Army Chemical Corps.

MR. WANSKER'S THANKS

Fifth Vice-President Harry A Wansker, Chairman of Meetings Committee, wishes to extend to all concerned the following message:

"It is with a good deal of pleasure and sincere appreciation that I acknowledge via the A.F.C.A. Journal the tremendous teamwork by all program sub-committees, and the many personal sacrifices of time, money and energy which they gave so freely towards making our May 20 and 21 annual meeting the successful affair it turned out to be."

Rating System For NCO's and Specialists

Army personnel in the top four enlisted grades will be separated into two groups, non-commissioned officers and specialists, as part of a plan designed to contribute to increased effciency and greater enlisted *esprit de corps*, the Department of the Army announced recently.

The new plan will become effective about January 1, 1955.

Individuals in those grades serving as leaders or supervisors will retain their NCO status, while those who perform non-leadership duties of a technical or administrative nature will be designated "Specialists."

The plan is intended to increase NCO authority and responsibility as well as to enhance NCO prestige. At the same time, the plan will not detract from those who will become Specialists.

NCO titles and insignia will remain unchanged and NCO's will rank all other enlisted personnel, with Specialists ranking next in order. There will be no changes in pay or related benefits as a result of the plan. Specialists will have new distinctive insignia and will rank among themselves as Master Specialist (E-7), Specialist First Class (E-6), Specialist Second Class (E-5), and Specialist (E-4). Regardless of grade they will be addressed as "Specialist."

Execution of the plan will be effected world-wide on the same day throughout the Army, including the Reserve components.

Any person in a Specialist assignment in the Active Army at the time of conversion, and who previously held a leadership position in the same grade, may request retention of NCO status. Likewise, NCO's who desire to be specialists, may request appointment in the new category. In these cases unit commanders will make final decision.

Once an individual attains NCO or Specialist status within a pay grade, he will not lose it because of transfer to another unit or command.

SYMPOSIUM ON DISASTER PLANNING

CBR—Gen. Creasy
Navy—Adm. Schindler
Air—Gen. Nelson
Civil—Gov. Peterson

Opening address of afternoon program of 9th Annual Meeting of the A.F.C.A., at the Shoreham, Washington, D.C., on May 21st by

MAJ. GEN. WILLIAM M. CREASY, U.S.A.
Chief Chemical Officer, U. S. Army

Mr. President, Distinguished Guests, Ladies and Gentlemen:

While disaster planning is of interest to all of us in the United States, both industry and military, and while I am representing the Department of the Army at this symposium, I note that the other speakers here are people who can cover adequately those fields that have to do with destructive type disasters resulting from the use of A-bombs, H-bombs and incendiaries. Accordingly, I have elected to confine my remarks to basic anti-personnel fields which are those of the Chemical Corps' peculiar competence and, therefore, necessarily our major interest.

In thus confining my remarks today, I am not ignoring Chemical Corps competency and interest in the incendiary fields, but as I have indicated above, I feel that protection against incendiary warfare will be covered adequately by other members of this symposium.

As you may know, the Department of the Army has been assigned primary responsibility in offensive and defensive chemical and biological warfare, for the entire Department of Defense. Army has, in turn, delegated this responsibility to the Chemical Corps. In addition, the Chemical Corps is also responsible for defensive radiological warfare for the Department of the Army and offensive radiological warfare for the Department of Defense.

It is, then, with protection in event of attack by CBR agents that I should like to deal today. By treating protection in this field, I would like to emphasize that I am not attempting to forecast if such an attack will be made or where it might be carried out. But, I do want to point out what must be done in the event of such an attack.

The very nature of CBR warfare makes our task one which is necessarily different from other methods of warfare. As was demonstrated in the second World War, civilians by making use of subway shelters may find safety from a rain of high explosive bombs. Suppose, however, the shells and the bombs were filled with CW agents, pathogenic micro-organisms, or a radioactive agent? Obviously, ordinary shelters would not be enough. The CW agents such as the G-agents, or nerve gases, can enter the normal ventilating systems of shelters, and since they are odorless and colorless, could not be detected in time to avert catastrophe. Pathogenic micro-organisms released in the atmosphere can also enter shelters or may contaminate the water system of a community, thus seriously affecting the populace after the immediate danger of attack is past. Use of radiological warfare would present an added hazard to any people caught in the contaminated area.

U.S.A.F. Photo

Symposium speakers, left to right: Maj. Gen. William M. Creasy, Chief Chemical Officer, U. S. Army; Rear Admiral W. G. Schindler, Assistant Chief of Naval Operations; Hon. Val Peterson, Federal Civil Defense Administrator; Maj. Gen. M. R. Nelson, Commander Eastern Air Defense Force and President L. W. Munchmeyer, who presided.

In the event of war, we must assume that an enemy will use some form of CBR warfare, and we must be ready to meet the threat posed by the employment of such warfare. The Chemical Corps has developed, and is continuously working to improve, ways to combat enemy use of CBR.

Three Classes of Protection Involved

As I see it, protection of the community during a CBR attack consists of three areas:

(1) Collective protection
(2) Family protection
(3) Individual protection

And I will not hesitate to say that primary protection will be afforded by the individual protective mask. The Chemical Corps is endeavoring continually to improve protective masks which will offer protection against chemical and biological agents. Civilians as well as armed forces personnel will need these masks if they are to sur-

vive exposure to such agents. We in the Chemical Corps have been developing a mask for the civilian population which affords adequate protection, is easy to use and costs little to produce.

Less than a month ago, the Chemical Corps was authorized by the Department of Defense as a part of military assistance to Civil Defense to make procurement of 8,000 of these civilian masks for the Federal Civil Defense Administration and to include FCDA requirements in future procurement and planning programs. Such a step is a move in the right direction, for these masks, a sample of which I have brought along today, would insure complete protection to a large percentage of our population under a great variety of conditions. Parenthetically, I am sure you all appreciate that as long as adequate research and development are permitted to continue one would hope that the requirement to freeze on the final design for mass production could be delayed, thus permitting improvement in performance, comforts and cost. I am quite happy that in this instance I am not the one either authorized or required to determine the cut-off date or to weigh the hazards of all or various segments of our population being separated by a finite time from the ability to personally secure such end-items.

However, the best of masks is not enough against agents that will work through the skin. For example, liquid G-agents can be absorbed percutaneously and, of course, mustard attacks through the skin. To meet situations of this sort complete protection of the individual is required. This requirement can be met by the use of protective clothing which can withstand the action of CBR agents and protect all parts of the body from them. Thus with a mask and a complete outfit of special protective clothing a man would find himself quite well prepared to meet most eventualities. Civilian defense workers dressed in this manner would be able to work in a contaminated area after an attack and carry out functions necessary to restore some semblance of order to the community.

Of course, we realize that such individual protection is apt to be expensive, bulky and relatively uncomfortable, but for those who have to expose themselves directly to CBR hazards such equipment is indispensable. Again one must weigh the hazard of the probability of the requirement for this complete protection for civilians other than, for example clean-up crews.

Protective Fibre Board for Shelters

The protection from CW and BW agents of the family, as a group, can be achieved through the use of a fiber diffusion board. A shelter constructed of this diffusion board would be gas- and bacteria-proof, and amazingly inexpensive. Such a shelter would also afford protection against radiological agents. For extended use such shelters might be extremely uncomfortable compared with the more expensive ones but they would put within everyone's reach the means to protect his family. And I need not point out that most of us would consider it more desireable to be uncomfortably alive than comfortably dead.

There is another form of protection which can serve the family in event of war, and that is the root or cyclone cellar discussed by Dr. John J. Grebe in a recent issue of the Armed Forces Chemical Journal. Dr. Grebe is a consultant of the Chemical Corps and in 1948-49 served as chief technical adviser to the chief of the Corps.. He states in his article that "with the doors properly sealed and the cover supported on a porous framework and made of ordinary top soil, preferably good humus and grass, there is enough ventilation by diffusion through the humus to protect the people inside from biological and chemical agents at the same time that it protects them against fire and minor blasts and radiation hazards. One square yard of diffusion surface should suffice for one occupant."

If along with these shelters, either that made of a diffusion board or a root cellar, members of a family are equipped with protective masks, our civilian population would be in a good position to meet an enemy attack.

Collective protection will have to be provided for large buildings, such as hospitals, and for underground shelters, which, although prepared for other purposes, will house a great many people in case of atomic attack. It should be emphasized that the basic underground shelters are not required per se for the individual equipped with a mask, and shelters not especially equipped, do in fact present material additional hazards for those without a mask. Protection of buildings and shelters will be afforded by use of mechanical collective protectors which will filter from the air toxic agents and thus make any reasonably airtight building or shelter safe. I can assure you that the Chemical Corps has been placing quite a bit of emphasis on the development of these collective

protectors. I can also assure you that both construction and operation of such protective devices will be quite expensive.

These, then, are our means for protecting the population against CBR warfare. But our protection would mean little indeed if the people were unaware of the hazards they were about to face. The G-agents are colorless and odorless; BW agents can't be seen and are ideal weapons for saboteurs; radiological hazards can't be measured without specialized devices. Therefore, we must have methods of detecting the presence of toxic agents, and we must be prepared to act rapidly at the slightest suspicion of the use of CBR warfare.

The development of adequate protection mehtods is a continuing process. We are constantly seeking to improve and speed up our ability not only to recognize that toxic agents have been used but what agents are present. Automatic alarm systems have been developed to warn of the presence of nerve gas, and can be produced when and if required. I am sure you appreciate that considerable quantities of both time and money would be involved.

BW Detection Problem Difficult

Biological warfare presents a more difficult detection problem. An increase in the bacterial count in the air might suggest an attack, but such an increase per se cannot be of much use until the particular bacteria are identified. After all, there are a great many possible biological agents, and it is not practical to inoculate the entire population against all possible agents. I am sure that most of you are aware that the Chemical Corps long ago sponsored the development of a filter which, along with other techniques and equipment, makes it possible to identify bacteria in water within fifteen hours, or one-sixth of the time previously required. Thus, those exposed can be treated and preventive measures initiated to protect other personnel in critical areas.

For detecting and measuring the amount of radiation to which an individual is being subjected, whether directly from the fireball of an atomic detonation or from subsequent radiological fall-out, the Chemical Corps has under development a chemical dosimeter. Other items of equipment for use in this field, such as the self-developing polaroid film badge and the electronic quartz-fiber type of dosimeter are under development in other departments. None of these items is in production at this time, although they could be made available in an emergency on very short notice.

Once the problems of detection and protection have been met, decontamination of the affected area must be undertaken provided personnel have to stay in the contaminated zone, which unfortunately would be the case in most civilian areas. Fortunately, however, from the defense viewpoint nature herself, aided by sufficient time, does quite an adequate job. Where this is not the case decontamination of toxic materials will, in large measure, be the responsibility of specially trained personnel. While methods have been evolved and mobile apparatus developed to fulfill the needs in this area, the variety of possible situations is such that generalized statements regarding decontamination can be extremely misleading. There are a number of possible and even probable situations where the logistical effort required for decontamination, particularly under over-all disaster conditions, renders complete decontamination impossible.

The above are the means developed by the Chemical Corps to meet possible civilian disaster produced by a warfare involving CBR weapons. However, mere possession of a military know-how of protection against toxic agents is not enough to insure civilian safety.

Need for Training of Civilians

Civilians will have to be alerted to the potentialities of such an attack and will have to be educated in the use of various protective devices.

A populace fully informed on the nature of CBR warfare is a prerequisite to averting panic in case of attack. Only if our people are cognizant of the dangers involved and of the methods to be used to combat these dangers can we hope to meet an attack employing toxic agents. Our population can now discuss defense against the atom bomb with fair aplomb since they have become used to hearing about atomic bombs and protection against them. Until very recently, the agents involved in CBR warfare were under very tight security wraps and only distorted reports and scare stories leaked out to the public. A few months ago the nerve gases, or G-agents, were brought out from behind their veil of secrecy. We have now told the people that we have these gases, how they act, and that we are producing them. We have also told them that the Russians have them.

In my mind, this is a good thing. Fear doesn't cling so readily to something we know about. More time can be spent finding ways to protect ourselves and learning to live with what is an unpleasant, but not hopeless, situation.

Once our populace is aware of these methods of wafare and the first wave of panic of the unknown overcome, the next step is to instruct the American people in the use of protective devices.

Just owning a protective mask is not enough. Civilians will of necessity have to learn how to don one quickly and will have to learn to leave the mask on until danger is passed. We in the Army know that gas discipline is of utmost importance—the speed of masking can save your life, and leaving the mask on, although it may not be overly comfortable, can mean the difference between life and a whiff of lethal gas.

Likewise, family and larger shelters will be of little value unless people know how to get to them rapidly, without panic and with a minimum of exposure.

All these defense measures take practice and discipline for we cannot expect the population to do the right thing from instinct alone. As a people, we Americans do not like to be bothered much with things that are merely possibilities and not yet realities. But if we are to survive in CBR warfare, or any warfare, we have to plan for disaster, and we have to practice and re-practice measures which are necessary to defend ourselves and our fam-

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ities. It is here that the civilian defense administration will take over and train our people in what they must be prepared to do when and if the attack comes.

I know that Mr. Peterson and his aides are aware of problems faced in CBR defense. In an article on G-agents published last November in Colliers Magazine, Mr. Peterson is quoted as saying that "we must assume, in the event of another war, that nerve gas will be used." He also made the statement that masks would now be available to the entire populace if research funds had been forthcoming to complete tests on protective masks developed by the Chemical Corps. The availability of such masks would be a long stride toward an adequate defense for our people.

More Funds Needed to Meet CBR Threat

I do not come here as a prophet of gloom, for I know that Chemical Corps developments can dispel clouds of fear, but I would like to point out that disaster planning for CBR warfare is in its infancy. This retarded development is not one of our choosing. The Chemical Corps and civilian defense agency have much of the know-how. This know-how consists of the ability to produce a civilian mask which will be the primary protective item; the ability to plan for family and collective protection; the experience necessary to establish training and the scientific background required for producing detection devices and means of treatment. What is required to bring CBR disaster planning to adolescence, or let us hope maturity, is a vigorous, adequately funded, well-publicized program for research, production, and training which will equip not only our military, but also our civilians to meet the threat of a CBR war.

In closing, I would emphatically repeat an earlier statement. I have made no attempt to forecast the probability of the use of CBR warfare against our civilian population in general or to indicate particular areas against which it might be used. Implicitly I have stated that there is every reason to believe that this is an enemy capability. My sole purpose was to present one man's concept of the current status of some things that might well be required by our civilian population.

NAVAL ASPECTS OF DISASTER PLANNING

Condensation of Address at the Symposium by

REAR ADMIRAL W. G. SCHINDLER, U.S.N.,

Assistant Chief of Naval Operations

Stated in its simplest terms, the Navy's traditional job has been and still is, to gain and maintain control of the seas. More specifically, the U. S. Navy, in conjunction with allied naval forces, must exercise positive control over those sea areas needed for our own uses and those other sea areas of critical importance to the enemy. The Navy will also have collateral tasks in support of the Army and the Air Force.

By "sea" we no longer mean the surface of the sea. The air above the sea and the depth below the surface are now part and parcel of this strategic area. Both offensively and defensively our operations are being projected in all three media.

I am sure that it is quite evident to everyone present that upon our control of the seas depends our industrial might. Without imports of manganese, tungsten, and many other strategic materials, the industrial might of the United States cannot function even in peacetime. In wartime, if we lost control of the seas we could not project our military power on the enemy nor could industry forge the weapons for defense.

The safe passage of our ships at sea will do us no good if our ports are badly damaged or our ship channels blocked by mines or sunken ships. In peacetime the Coast Guard performs the functions of port control. The services performed by the Coast Guard are of necessity limited in scope and consist in general of port surveillance with special attention given to areas called "restricted areas." The Coast Guard handles the control of movement of special cargoes, especially those of a high explosive nature; it controls the designation of regular and special anchorages, and the moderation of the Port Security Council. The Port Security Council is an advisory group consisting of representatives of owners and operators of ships, maritime labor, and other related organizations. This group is only advisory in nature and mutually cooperative tending toward the solution of many problems such as pilferage, sabotage, security, and losses due to fire and accidents. These problems are largely reduced through cooperation of the waterfront interests with the Coast Guard, which screens personnel, thus eliminating poor security risks.

In time of war, the Coast Guard becomes part of the Navy and has full control over all ports. Not only are our ports under military control but the harbor defenses are strengthened, channels swept for mines, special ship channels designated, and nets and controlled-mine fields placed in designated places. We must be prepared to defend our harbors against sneak attacks from submarines, small craft or swimmers. The defense of our harbors cannot be overstressed. This type of attack is not something new. We did it in Japan; the Germans did it in Scapa Flow; the English did it in Norway; the Italians did it in Alexandria. We know that the Russians have over 400 submarines which will be utilized to the maximum extent possible. From an attacker's point of view, the targets would be very lucrative. A hit on a loaded tanker of some other ship carrying an explosive cargo would produce devastating results. Think what would happen if the explosive were a nuclear weapon. It isn't a pleasant thought but does point up the necessity for the highest coordination and cooperation possible.

Our ability to conquer the elements or control damage inflicted by an enemy is a measure of our capability to carry out our mission. An important part of the organization of the crew of a naval vessel is the damage control party whose main function is the neutralization of the effects of damage, no matter from what source. However, it is quite possible, based on today's weapons, to have no physical damage but to be seriously affected by contamination. Our damage control parties are trained to locate contamination, and undertake effective decontamination procedures.

The necessity for this type of training is emphasized by the results of the hydrogen bomb tests held this spring in the Pacific. The area of physical damage due to blast, heat and radiation was much larger than in any previous test. In addition, serious contamination occurred at a considerable distance from the test site due to fall out of radioactive material. The case of the Japanese fisherman is a good example of what can happen to untrained personnel. In a nuclear attack we cannot accurately predict what personnel casualties will result nor who they will be, nor can we advise people what to do after an attack has occurred. We cannot depend entirely on our disaster control organization since it comprises only a part of our overall organization. We must train all hands now to take proper action and fill the gaps caused by casualties. In the Navy this individual and team training receives a very high priroity with drills being held frequently and problems conducted utilizing radioactive source material to provide realism.

Since the purpose of the naval shore establishment is to support the fleet, any damage to part of this establishment will have a detrimental effect on the fleet in the long run . . . We have, to the maximum extent possible, extended the principles used by our shipboard damage control organization to the naval shore establishment.

Modern warfare has greatly magnified the areas over which war damage occurs. No longer can a naval establishment, such as a shipyard or an air station, rely on self-protection and be independent of other activities in the vicinity. A station can suffer damage so widespread that disaster operations necessarily devolve upon adjacent activities, rather than upon the installation itself. Disaster operation organizations must be capable of effective work whether at their own particular activity or at neighboring installations or communities. The disaster operation organization of each activity, naval or civilian, can be a part of a larger organization capable of rendering assistance to an entire community and must be set up along well defined standardized lines. A review of the news in the last few months clearly indicates the need for an organization such as this. The recent tornadoes in Georgia did terrific damage but think of the added problem which would have existed there if the damage had been caused by a nuclear weapon or other weapons which would leave a definite contaminated area. Clearing up your own area and decontaminating up to the fence will not do the job. It will be absolutely necessary for all hands, military and civilian to work together in reducing the contamination of the entire area.

Disaster operation plans developed by military activities and civil defense plans provide a basis for mutual aid. A good example of what can be accomplished in joint planning is the Blue Plan for the island of Oahu. Remembering the debacle which resulted when the Japanese attacked Pearl Harbor, a disaster relief organization was organized by the Navy in 1945, utilizing resources throughout the island. This included not only the Armed Forces' installation, but also all the principal plantations, cities and municipalities. Even the resources of reluctant neighbors were listed on the plan, confident in the knowledge that if disaster struck again all personnel and equipment would be made available.

The Oahu Blue Plan has been tested on several occasions. Exercises simulating large area damage such as would result from the explosion of a nuclear weapon have been conducted with gratifying results. On several occasions the organization functioned extremely well in controlling small scale disasters. The Oahu Blue Plan is postive evidence that Pearl Harbor does not intend to be caught again unprepared and is a good example of what can be accomplished when coordination and cooperation exists.

So far I have spoken only of the planning aspects and have not differentiated between natural and man made disasters. In a disaster area it really doesn't make much difference what causes the disaster. The important thing is to return the activity to an operating condition as soon as possible. Since planning alone is not sufficient, I would like to take up briefly the problem of protective construction.

A large part of the naval shore establishment is industrial in nature and we have studied what measures we can undertake now to minimize damage in this atomic age. We cannot afford to rebuild our whole shore establishment, or in the case of new buildings, afford to put them underground. As a compromise, the Navy has decided upon the incorporation of certain basic engineering and architectural features into all new permanent construction so that later conversion of all, or parts of such buildings into shelter areas can be done with a minimum expenditure of time, effort, and material. The protection to be provided is against atomic, biological, and chemical attack. A maximum of five percent of total construction cost is considered sufficient for this purpose. Following this policy over a period of years will provide an establishment that is far less vulnerable structurally to blast effects than would otherwise be the case. In addition, loss of life will be materially reduced no matter whether the attack be by way of conventional weapons or by atomic, bioligical or chemical forms.

An example of this type of construction is the protective chemistry laboratory now being built at the Naval Research Laboratory here in Washington. This building is windowless, completely air-conditioned, with provision for the installation of BW and CW filters when available, and is constructed of reinforced concrete as opposed to low sheer material such as concrete blocks on brick. In addition, the washroom and toilet facilities are so arranged that they can readily be converted to decontamination stations. Provision is made for air locks, personnel shelters and emergency power suorces. One feature contained in this building is the provision for quick evacuation. This provision was included in this building due to the nature of the work there and not as a result of the building policy.

Planning is now in progress for the construction of a new wing on the Naval Hospital in San Diego containing the same features as mentioned above. We know that the medical personnel do not regard the windowless hospital too highly. The doctors consider that from a psychological viewpoint sunlight is a necessity for the patient. They further question the shape of the building, which would be in the form of a cube, saying it would disrupt the functional flow of traffic in the hospital. However, this is only a section of the hospital.

It is quite obvious that in the event of a direct hit or near miss by an atomic bomb we must write off that building. However, it is considered that amongst buildings at the equal distances from ground zero, those incorporating the principles previously stated will withstand the attack better than conventional buildings . . .

The placing of the above principle into operation is not without opponents since it is in direct opposition to some of our new ideas in architecture. Many of the new buildings around the country have large areas of glass and that is one of the materials which, not only does not stand up under blast, but adds an additional missile hazard. We appreciate the fact that the conflict in architectural ideas is strong but we believe that since the ultimate purposes behind our policy is the protection

(Continued on page 33)

THE ROLE AND ACTIVITIES OF THE AIR DEFENSE COMMAND

Condensation from the symposium address

By MAJ. GENERAL M. R. NELSON, U.S.A.F.

Commander, Eastern Air Defense Force

All of us in the military services are engaged in planning, training and perfecting our systems with the dual aims in mind of preserving a military system in being so strong that no one would think seriously of attacking us —and at the same time of ending war as quickly as possible should we be attacked.

Although we military people deal with machines and materiel capable of tremendous destruction, each and every one of us sincerely prays that the need to use them in war never will come.

We have heard much these last few weeks about the capability of the H-Bomb. We have all seen pictures of certain portions of 'Operation Ivy'—our 1952 test at the Pacific Proving Grounds. The resultant discussions have run all the way from pleas to ban the use of such weapons forever—to petitions to fill our arsenals with these weapons as a warning to any would-be enemy . . .

Now, we find ourselves in a current world situation of cold war and hot peace. We have the problem of organizing and operating under a hot war philosophy although at the moment the status is hot peace and cold war. And—we must prepare to defend ourselves at the shortest notice should that become necessary. Our organization and procedures are geared to a hot war situation while our national leaders work to solve the tense international problems of today.

The Soviet Union has the capability to attack us through the air with weapons of mass destruction. If these weapons are permitted to be delivered—without interference—they could destroy our industry, halt our military forces and nullify our will to resist.

That is the threat—and it is real.

Our nation has not stood still and depended on its ability to fight yesterday's war today. And—we have always continuously pursued all avenues to reach peaceful solutions to our external problems.

When it became apparent in World War II that supremacy in the air could turn the tide of battle, the United States began charting a course to provide an air arm superior to any in the world for both offensive and defensive action.

In 1947, the United States Air Force became an independent service alongside the Army and the Navy. This was a disaster prevention step of major proportions. The events of World War II showed us that our traditional position of isolated safety behind ocean and land barriers has been eliminated by the speed and range of aircraft. World War II also changed our thinking of war as involving only the military forces of opposing nations to one of total war which involves all national assets—civil as well as military.

Therefore, when the roles and missions of the three military services were spelled out at Key West, three of the primary functions of the Air Force dealt with defense of the United States against air attack. This was the first mention of what today is the Air Defense Command, headed by General Benjamin W. Chidlaw, at Colorado Springs. It is my privilege to command the eastern portion of Air Defense Command, which includes the city of Washington . . .

Specifically, the Air Defense Command . . . is responsible for defense of the United States against air attack in accordance with the policies and procedures of the Joint Chiefs of Staff.

I can assure you that the Air Defense Command is a combat organization from top to bottom. We place highest priority on operational readiness. And—we stand ready to do our utmost with our specialized equipment and 'know-how' to protect our homeland from invasion.

A second primary function of the Air Force is to provide through the Air Defense Command land-based air defense, coordinating with the other services in matters of joint concern.

Putting this responsibility into practice we work very closely with the Army—primarily with the Anti-Aircraft Command, at all levels.

With the Navy, our work is primarily with Eastern and Western Sea Frontiers. Air Defense Command liaison officers effect the closest possible continuous relationship.

The third primary function of the Air Force dealing with air defense is the development, in coordination with the other services, of doctrines, procedures and equipment for air defense for land areas, including the continental United States.

On this phase of Air Defense Command's primary responsibility, there has been continuous progressive planning, training and perfecting of the operation of our system in cooperation with the other services, our Allies and pertinent governmental and civilian agencies, to insure an overall optimum protective benefit from an established defense system.

You have heard this discussed as the "new look" in military planning, a rather unfortunate label. Actually, it is only a sensible long-range procurement planning program, which will preclude again finding ourselves in the condition we were in at the beginnings of World War II and the Korean operations.

Current plans and budgeting provide for a triple-threat force of offensive-defensive military services—on

land, on the sea and in the air—as it has been in the past. There has been no sudden shift in strategic policy. Rather, the increased power and influence of air weapons as a counter threat to enemy aggression has come about through advances in air and atomic science.

Working together, the Atomic Energy Commission, the air industry and the Air Force, are actively researching the application of an atomic power plant to aircraft. That development will overshadow other military applications of atomic power for the next few years. Both air warfare and air transport will be revolutionized by the atomic-powered aircraft to a degree far exceeding the revolution brought about by the jet engine.

Solving these big problems takes time and money and highly skilled technical experts. And—everyone in the United States must realize how important the pursual of these programs is in terms of national security—in the final analysis, in terms of the survival of freedom.

Our desire in air defense, of course, is a completely fool-proof system . . . However, our military experts and scientific advisors are in general agreement that this is neither economically feasible nor technically attainable.

We do, however, feel that we know most of the technical problems of defending our more than three million square-mile country. Research and development is going forward . . . to better our defense system . . .

The current issue of the "Armed Forces Chemical Journal" has an illuminating article on progressive chemical developments vital to the Air Force mission under the title of 'Chemistry Flies.' This paper pinpoints the air age problems which the chemical industry is so ably working with the Air Force to solve.

As the Air Force carries the ball to fulfill its Air Defense mission, working with the other military services, it is engaged in a continuous program of cooperative effort to mesh its activities and equipment with other governmental and civilian agencies . . .

As you can well realize, one of our major problems is getting the earliest possible warning of the approach of unknown aircraft to our continent . . .

Within the United States, we rely on radar supplemented by the vital eyes and ears of thousands of civilian volunteer members of the Ground Observer Corps to detect aircraft. We need thousands more of these patriotic ground observers . . .

At our Air Defense Direction Centers, immediate steps are taken to identify all unknown aircraft. When necessary, a Fighter-Interceptor Squadron, like the one located at Andrews Air Force Base where you visited yesterday, is signalled to 'scramble' its alert posted jets to take off and identify the intruder. This is done frequently right here in the Washington area . . . So far, we have identified all unknowns.

As each month passes, we become better able to accomplish our early warning responsibilities.

Our Allies, the Canadians, are nearing completion of a radar system known as the 'Pine Tree Chain' across their country. This system by cooperative agreement will give us additional information from the north on aircraft traveling over the polar regions and Canada. This chain will serve the dual purpose of detecting enemy bombers and controlling fighter aircraft on interception missions.

Even while the "Pine Tree Chain" was in its early stages, Canada and the United States started planning on additional means of obtaining more distant early warning. Canada today is well advanced in surveys and siting for a new system. It will extend over thousands of miles far to the north of the 'Pine Tree Chain' over uninhabited terrain where severe temperatures prevail for several months of the year.

The United States and Royal Canadian Air Forces are working closely on technical problems, such as interference of the Auroral Belt with electronic devices in that far northern area.

No defense force—no matter how effective—can alone bring victory any more than one of our military services can alone accomplish its mission. It's teamwork that counts.

Our Strategic Air Command—about which you will hear from General LeMay tonight, is our aerial long-range striking force with the Sunday punch. The Air Defense system must be able to provide sufficient warning time and air protection to permit the Strategic Air Command to reach deep into the enemy heartland to deal its devastating retaliatory blows . . .

It is this two-way offensive-defensive strength of our nation and its far-flung network of information-gathering agencies and devices plus its allies that is our strength in being for national security. Backed up by our industrial capabilities and the will of our people to sustain that strength superior to any in the world—that is our insurance policy for freedom.

While the Air Force is perfecting its offensive-defensive system and dovetailing its operation with the other services, with our Allies, and with all cooperating agencies, it is working diligently with industry on disaster planning. This is primarily through participation in the Defense Production Security Program of the Department of Defense.

Air Force survey personnel of the Air Materiel Command visit critical industrial facilities twice a year under this program. They inspect facilities and recommend to management those actions which should be taken in order to prevent damage, in order to minimize the effect of damage, and to restore production as quickly as possible in the event of serious damage.

This is a volunteer program and management is free to accept or to reject the survey recommendations. The Air Force offers no financial incentive of any kind.

As an adjunct to this activity, the Air Force placed contracts with more than 50 industrial concerns representing 13 industries. These concerns studied their operations . . . and recommended advance planning measures which would reduce production loss in case of disaster.

An analysis of the studies . . . will be published soon by the Office of the Secretary of Defense . . .

THE CIVIL DEFENSE ANALYSIS

Extracted from the Symposium Address

***By* THE HONORABLE VAL PETERSON**

Federal Civil Defense Administrator

Let us consider first the general role of industry in civil defense, and then turn to the matter of chemical warfare.

Civil defense as it applies to industry seems logically to include these nine points:

No. 1 *Industry is the Target.*

No potential enemy will make the same mistakes as our enemies in the past, namely, to tangle with our military forces and leave our industrial production intact.

No. 2 *Survival of Industry and recovery from a devastating attack cannot be left to chance—it is not automatic.*

Bear in mind that survival and recovery of industry under attack conditions will result only from months or even years of planning, preparing plant equipment and personnel for such a disaster.

Above all, it must be coordinated with efforts being taken throughout the nation to alleviate the results of mass destruction weapons on property and people.

No. 3 *The organization and operation of a civil defense plan within an industrial or commercial establishment follows a well-defined pattern.*

There must be effective leadership—responsibility of the owners; sound business-like preparations of a physical nature . . . Dispersal—strengthening of structures, etc.; organized casualty handling services . . . to handle unprecedented numbers . . . ; plans for the emergency repair of buildings and machinery; systematic coordination of plans for survival within individual plants with those of other plants and the community . . . a systematic plan for the preservation of records and other documents essential to the operation of the plant.

It is necessary to remark at this point, that since this country depends upon a well-established credit system for fiscal operations, we cannot permit a breakdown at the plant level of the evidences of credit needed for business continuity after a disaster.

No. 4 *Those faced with the problem at the plant level are in the best position to determine which of many possible solutions best fits their particular needs.*

Dispersal in civil defense involves advance relocation of industrial and commercial establishments to reduce vulnerability . . .

But dispersal is not always feasible—Those who cannot disperse or relocate must be prepared to withstand the forces released by modern weapons, to save what can be saved . . .

The owners and operators of industrial and commercial establishments should recognize the fact that in an emergency they will not be able to rely on the public safety services for protection as their efforts will ordinarily be directed elsewhere. Damage and injuries received under such circumstances must be handled by those already at the scene, IF THEY ARE PREPARED TO HANDLE IT.

No. 5 *Even by the most optimistic estimate, there will never be enough of both manpower and equipment to meet all of the dangers accompanying an attack.*

We must pool our resources, both in the preparation and emergency operation stages. Public and private enterprise must become a team for defense.

We must anticipate the demands of a maximum damage situation and hope for something considerably less. In a sense we cannot overestimate our requirements. We could underestimate to our everlasting sorrow.

Our plan must be so complete and so sound that emergency confiscation powers provided for in the FCDA Act, P.L. 920, and again in many of our state civil defense acts, will never have to be invoked.

No. 6 *As a further consideration of the previous point; it is submitted that industrial leaders should be satisfied that those who will have the power to seize and use their equipment and other resources are competent to exercise this power in an effective manner.* There is only one way to insure the existence of such effective organization. Industry must cooperate with public authorities in the development and staffing of effective CD organization and plan for it. In some cases it may be necessary for industry to assume leadership in civil defense in their community.

No. 7 *There is no magic protective dome which can be lowered over a plant to insure the avoidance of damage to property and injury to personnel.*

No. 8 *In the industrial defense picture, as in all of civil defense, there are encountered two attitudes toward Civil Defenses first, there are those who will be dependent upon assistance from others in an emergency, largely because they failed to take adequate precautions in advance.*

(In elaborating on this Gov. Peterson spoke of his gratification with the work which many industrial firms have done or are now doing in CD. In this connection he referred to recent visits of three industrialists to his office to tell him of their efforts.)

No. 9 *The effort by the government to create and operate a national system of continental defense suggests a two-fold role to be played by industry*s

1. Organize and operate an adequate defense program within each plant.

2. Call upon your know-how, technical skill, and insatiable mechanical curiosity to devise better ways and means of carrying out the many complex problems which beset the nation's continental defense effort.

Chemical Warfare and Civil Defense

Without attempting to go into technicalities, the following five points must be taken into consideration:

1. Present FCDA planning assumptions concerning chemical warfare attack against the United States are that chemical weapons will be used before or after atomic attack, and that special measures to meet them are a continuing necessity.

2. It is also possible that chemical agents might be employed in conjunction with atomic or thermonuclear attack, or alone in a surprise attack, against the civilian population of critical target areas. It is not difficult to indicate how this might be accomplished.

3. Any program for defense against chemical attack must necessarily be flexible, as the destructive range of atomic and thermonuclear weapons increases. Protective shelter programs are particularly affected by de-

cisions concerning dispersal or evacuation of critical target area populations, which may make the latter even more vulnerable to chemical attack. In any event, failure to be prepared for such emergencies will only serve to invite this kind of attack.

4. Our concern with the toxic agents is limited primarily to the nerve gases, and secondarily to the mustard gases, as it is now believed that the other known toxic chemical warfare agents could be used effectively against this country at present or in the immediate future.

5. A related problem which has to be considered is the potential hazard arising from the possible release of toxic industrial chemicals from storage, either accidentally or as the result of enemy action.

And now, what is the challenge of civil defense to the chemical industries?

Well, for one thing there is the formation of chemical defense teams. These teams are concerned with: Detection (monitoring); Identification; Marking of Areas; Decontamination; Training Others; Emergency Treatment; Storing of Chemicals; Gas Warning Signals; Reports.

And, for another thing there is the provision of supplies and equipment for these chemical defense teams.

And finally, there is the perfection of protective equipment such as masks and protective clothing which could be necessary for the general population.

* * * *

(Governor Peterson concluded his remarks on chemical warfare by alluding to the 9-point Gas Defense Program, drawn up by the FCDA Health Services and Special Weapons Defense Office, and which was published in an article by Dr. J. H. Defandorf of that office in the January-February issue of the AFCA Journal.)

9TH ANNUAL MEETING

(Continued from page 13)

Reception and Banquet

The reception and cocktail party was held in the West Ballroom. In the receiving line in addition to President and Mrs. Munchmeyer were General LeMay and President-elect Rear Admiral N. S. Prime and Mrs. Prime. Orchestral music was furnished by the Air Force.

At 7:15 P.M. the members and guests, numbering more than 500, proceeded to the spacious Terrace Dining Room for the banquet program. The attendance included many military and other governmental dignitaries and top executives of A.F.C.A. group member companies. Tables were decorated with Texas roses, which had been kindly donated and sent from Tyler, Texas, by Mr. K. G. Irving, A.F.C.A. member. At the speakers table, in addition to President Munchmeyer, were General LeMay, General Charles L. Bolte, Maj. Gen. Creasy, Hon Val Peterson, Maj. Gen. Nelson, Lt. Col. H. S. Cashman, Army Chaplain, Major D. Coward, Air Force Chaplain, President-elect Prime, and Mr. Wansker.

The Air Force Ceremonial Band played the National Anthem which was sung by Airman 3rd Class Charles Balkema. Chaplain Cashman gave the invocation.

Following the address by General LeMay, President Munchmeyer before turning over the gavel to the new President called upon 4th Vice-President Harry A Wansker, Chairman of Meetings. Mr. Wansker made a brief address expressing appreciation for the assistance furnished the Committee by the Air Force, Chemical Corps and other agencies, and extending thanks to members of the Program Committee.

President Munchmeyer, having completed two terms in that office, turned over the gavel to Admiral Prime, the new President. President Prime in brief remarks first spoke in appreciation of the long and faithful services to the Association of Mr. Fred M. Jacobs, retired Secretary-Treasurer, and also expressed his confidence in the continued progress of A.F.C.A.. The benediction was pronounced by Chaplain Coward, and the 9th Annual Meeting was then declared adjourned.

NAVAL ASPECTS OF DISASTER PLANNING

(Continued from page 29)

of human life and since it is at present generally limited to industrial type buildings, the arguments for it far outweigh the arguments against it. I know that several commercial companies have shown an interest in this construction policy and have, therefore, presented it to you here today.

Not being aggressively inclined, we simply do not know when war will occur, nor what it will produce, nor how long it will last. We do know that the best means of defending our country is to carry the war to the enemy by destroying his forces and bases as well as by intercepting and destroying his attackers. This is still our goal but knowing that it cannot be fully attained we must be prepared to weather destructive attacks and retaliate with the greatest force possible while mobilizing our military and industrial might. Our ability to weather attacks requires planning and preparation now, together with the closest cooperation and coordination between all branches of the government and industry.

A. F. C. A. CHAPTERS

ARMY CHEMICAL CENTER (Mr. Randolph Monro, Secy.-Treas., Mountain Village, Joppa P.O., Maryland)

Dr. W. H. Summerson, Chapter President, presented the Chapter's contribution of $50.00 to the scholarship fund sponsored by the Enlisted Specialists Chemical Engineering Club at the Center. This fund is to aid a worthy Hartford County, Md., high school graduate selected each year by the Club and the Hartford County Board of Education. Last year's scholarship amounted to $700.00.

The Annual handicap golf tournament sponsored by this AFCA chapter was held May 1-2, the trophy winner being Mr. Jim Toulan, Ordnance Assembly Plant. Second place went to Capt. Joseph Capebianco, USAF. The chapter recently held a cocktail party at the post to welcome new members.

DALLAS (Mr. Leroy Duke, Secy.-Treas., Pine Bluff Arsenal Procurement Office, Dallas, Texas).

At the annual spring meeting on April 22, Mr. William P. Stone of the Lone Star Gas Co., Dallas, was elected President. Others elected were: Mr. Ralph E. Verson, Polley Bros., & Verson, Inc., First vice-president; Mr. K. G. Irving, Irving Machine Co., Tyler, Tex., Second vice-president; Mr. Richard L. Roden, John E. Mitchell Co., Dallas, Chaplain and Mr. Leroy Duke of the Pine Bluff Arsenal Procurement Office, secretary-treasurer.

Lt. Col. Edward N. Fitzgerald, Commanding Officer of the Procurement Office addressed the meeting, and a discussion was held on ways and means of stimulating A.F.C.A. interests and services in the Dallas area.

MIDWEST (Mr. James J. Doheny, Secy.-Treas., 86 E. Randolph St., Chicago, Ill.).

The annual meeting of the Mid-West Chapter of the A.F.C.A. was held April 28, 1954, at the Western Society of Engineers Building. Dr. John M. West, assistant to the director of Argonne National Laboratory, spoke on "The Impact of Atomic Energy." Mr. West, who has recently returned from an international conference at Oslo, is in charge of reactor development at Argonne. He presented an excellent picture of the present status of reactor engineering and concluded his talk with a number of other points concerning the various peacetime uses of atomic energy.

Following the talk there was presented the first Chicago showing of the color film on "Operation Ivy"—the H-bomb tests. The film was shown through the courtesy of the local Office of Civilian Defense.

More than 125 members and guests attended the meeting. The following were re-elected for a second one-year term: Lewis I. Terry, Corn Products Refining Company, president; Bruce T. Humphreville, Johns-Manville Corporation, 1st vice-president; W. D. Wilkinson, Monarch Aluminum Mfg. Co., 2nd vice-president; James J. Doheny, National Chemical Exposition, secretary-treasurer. Directors elected for a one-year ter mwere: S. S. Barksdale, HQ, Fifth Army; Gaillard Rumford, Abbott Laboratories; C. H. McNary, Rocky Mountain Procurement Office; Ray G. Sobottka, Dewey & Almy Chemical Company; and Morton Hague, Conlon-Moore Corporation (ex-officio).

Other business included a revision of the by-laws of the chapter to provide a place on the chapter's Board of Directors for members of the standing committees, and to define an Advisory Board to the Chapter.

SAN FRANCISCO (Patrick J. Moran, Secy.-Treas., San Francisco Bay Area Council, 130 Montgomery St., San Francisco 4, Calif.).

Addresses on civil defense and a showing of the hydrogen bomb film, "Operation Ivy", marked the annual spring meeting of this chapter held at the Presidio. The speakers were Major General W. M. Robertson, USA (ret.), Director of Civil Defense for the State of California, and Admiral C. Cook, USN (ret.) Civil, Defense, Director of San Francisco.

At the speakers' table pictured herewith were (left to right) Elliott Schrier, West Coast editor of "Chemical

Week," program chairman; General Robertson; Larry O'Leary, Director, Research, W. P. Fuller & Co., Chapter President; Admiral Cook; Col. Roy W. Muth, Sixth Army Chemical Officer; and Leland A. Doan, West Coast Manager of Dow Chemical Co., Membership Chairman who recently was elected as one of the Directors-at-Large of the A.F.C.A.

WILMINGTON (A. L. Churchill, Secy.-Treas., Atlas Powder Co., Wilmington 99, Delaware).

Sixty-one members of the chapter together with six chapter guests gathered at the New Castle Air Force Base on May 4 for the second meeting of the chapter this year. The group was met at the Officers Club by Col. Benjamin King, Commanding Officer of the 525th Air Force Group. The program included a tour of the Base followed by a dinner at which Colonel Roy B. Caviness, 4710th Defense Wing, gave a talk on "The Mission of the Air Defense Command and the part played by the New Castle Air Base."

NEW ENGLAND (Dr. C. S. Keevil, Secy., Arthur D. Little, Inc., Cambridge, Mass.).

The final meeting of the year was a joint meeting with the American Ordnance Association, held at the Woodland Golf Club on Thursday, May 13, 1954. Announcement was made of the election of officers and directors of the New England Chapter, for the year 1954-1955 as follows: Albert A. Brown, president; Frank Armitage, vice-president; C. S. Keevil, secretary; Chenery Salmon treasurer; Arthur Boardman, A. A. Borland, James Donovan, Lester A. Nothnagle, Harry Wansker, Harold Weber, Board of Directors (in addition to officers).

The usual cocktail hour was followed by dinner and a program consisting of a symposium on the subject "Off-Shore Procurement."

WINNERS OF A. F. C. A. AWARDS TO OUTSTANDING R. O. T. C. STUDENTS

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Columbus, Ohio

GARY BROOKS
ROTC
Mass. Inst. of Tech.
Cambridge, Mass.

ERWINE T. BUCKENMAIER, JR.
NROTC
Cornell University
Ithaca, New York

MARVIN E. ELLIS
ROTC
Georgia Inst. Tech.
Atlanta, Georgia

JEAN H. FUTRELL
AFROTC
Louisiana Polytechnic Inst.
Ruston, La.

GERALD LEO GLAHN
NROTC
University of Okla.
Norman, Oklahoma

JOHN R. HALL
ROTC
Vanderbilt University
Nashville, Tennessee

GORDON E. HARTZELL
AFROTC
Ohio University
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Wake Forest,
North Carolina

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JIMMY D. MAY
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Boulder, Colorado

RICHARD K. McLEOD
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JOHN R. MEYER
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Madison, Wisconsin

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Carnegie Inst. of Tech.
Pittsburgh, Pa.

PHILIP M. PALMER
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University of Wisconsin
Madison, Wisconsin

CHESTER J. PETKIEWICZ
AFROTC
Lowell Tech. Inst.
Lowell, Massachusetts

PAUL C. PICKENS
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Ohio State University
Columbus, Ohio

ADRIAN V. POLK
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Miss. State College
State College, Miss

RICHARDC.RUSSELL
NROTC
Georgia Inst. of Tech.
Atlanta, Georgia

CHARLESA.STICKELS
NROTC
University of Michigan
Ann Arbor, Michigan

JAMES G. UP de GRAFF
ROTC
University of California
Los Angeles, Calif.

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University of Illinois
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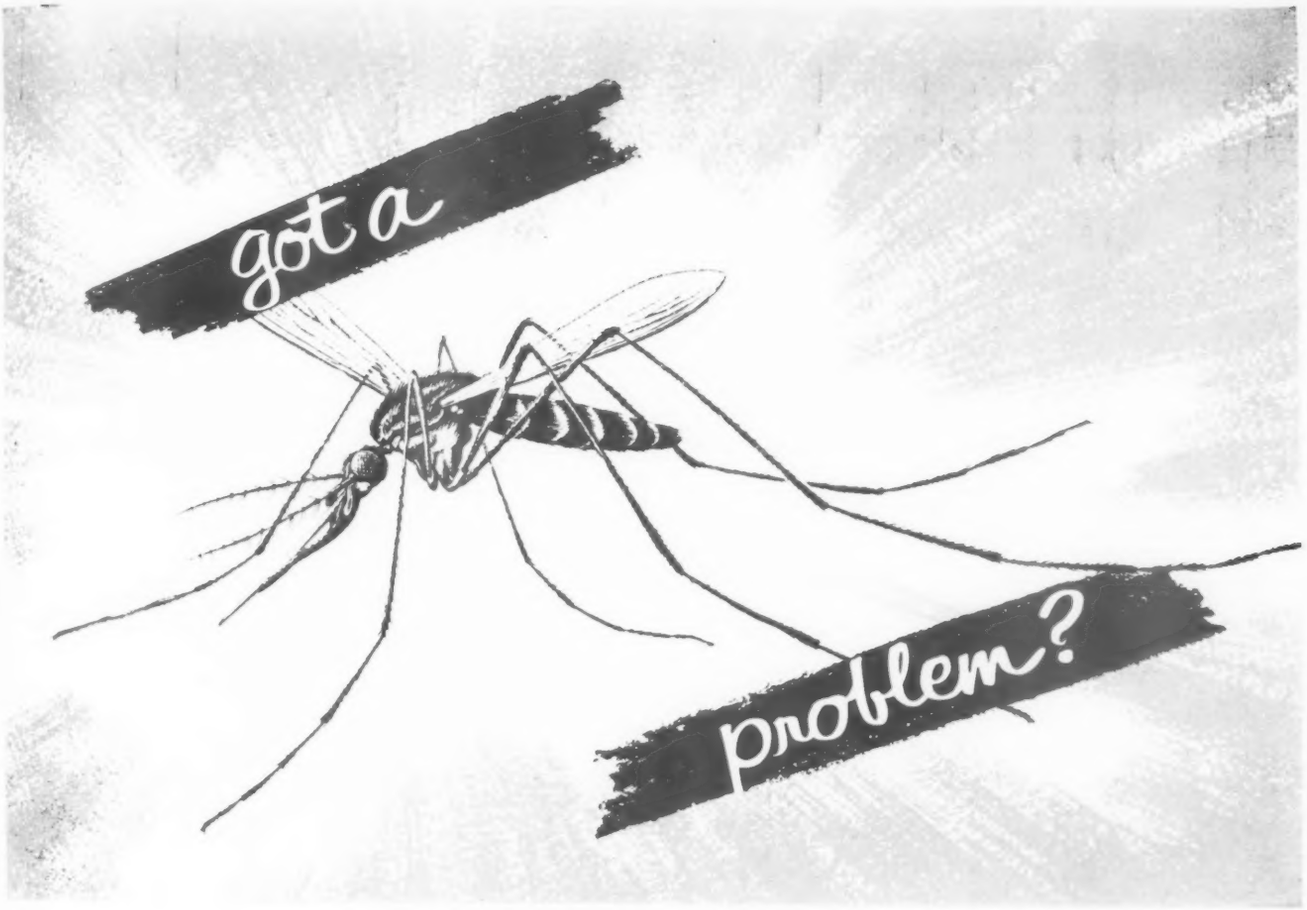

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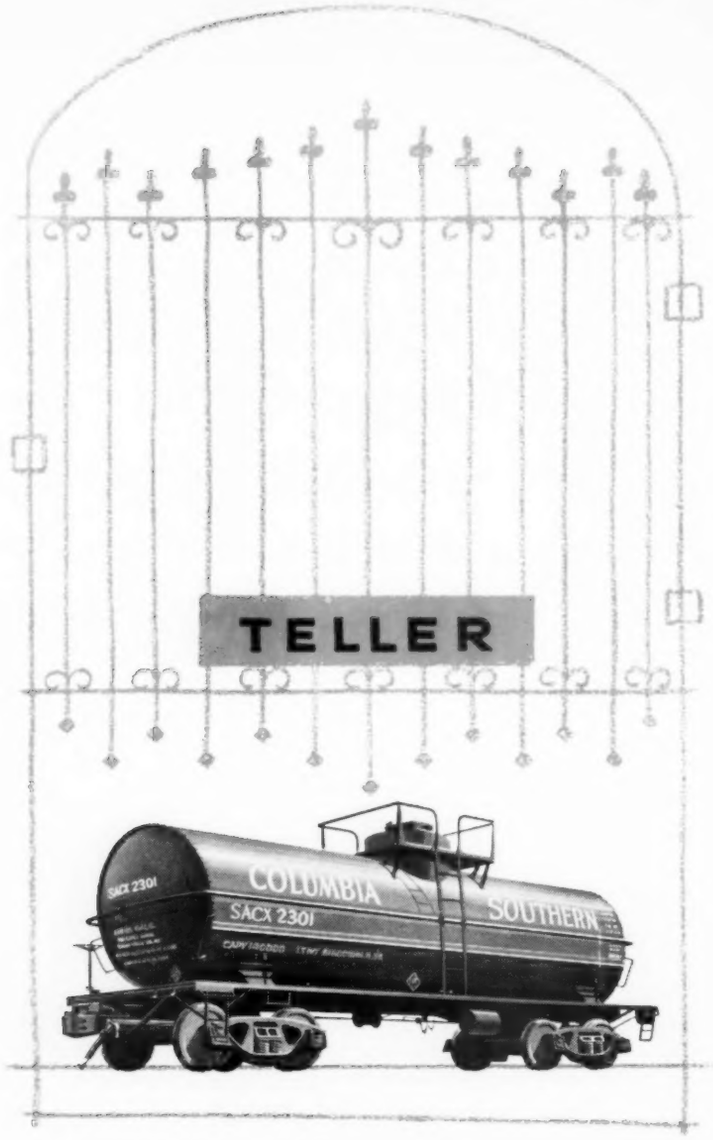

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